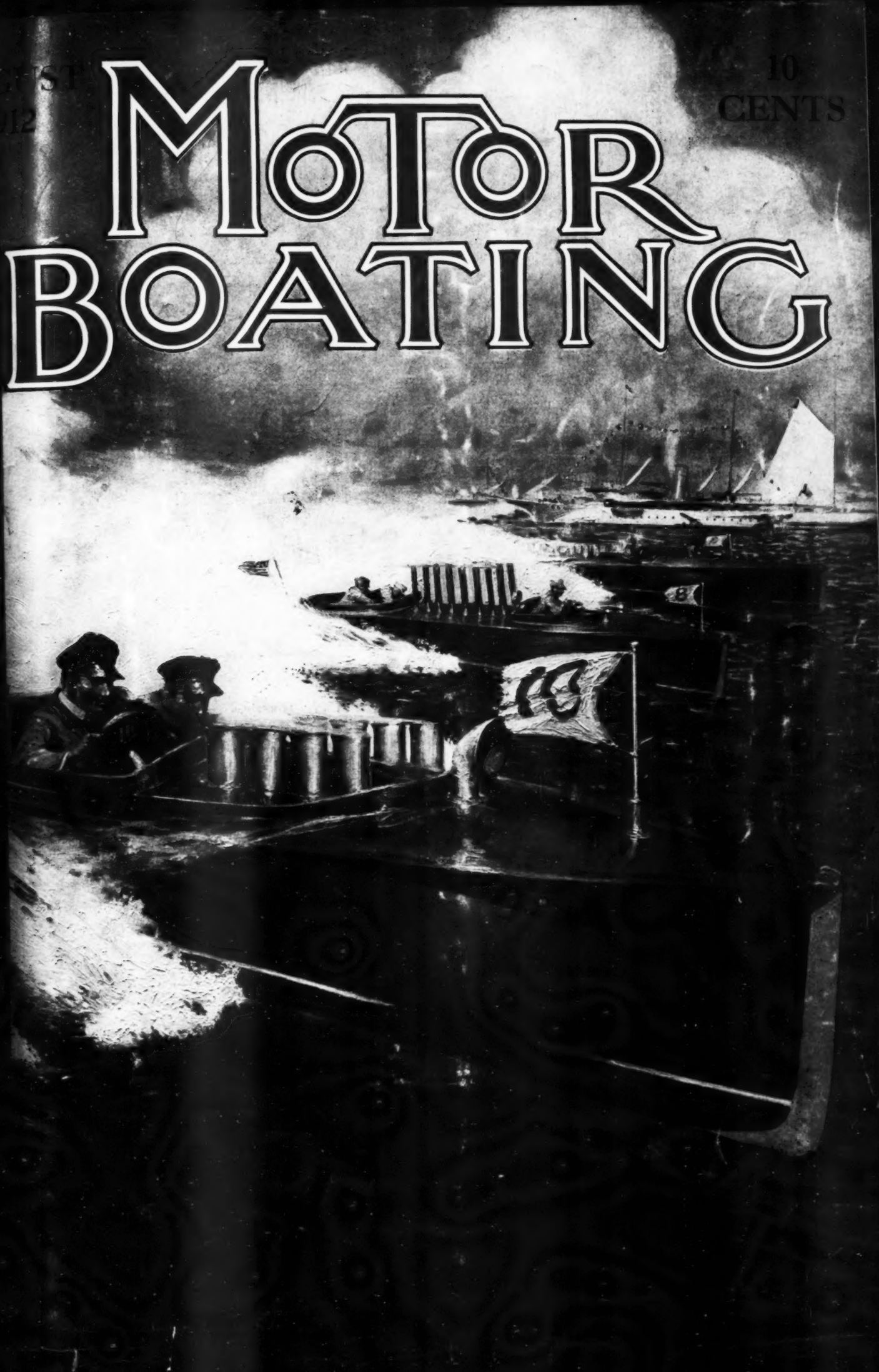
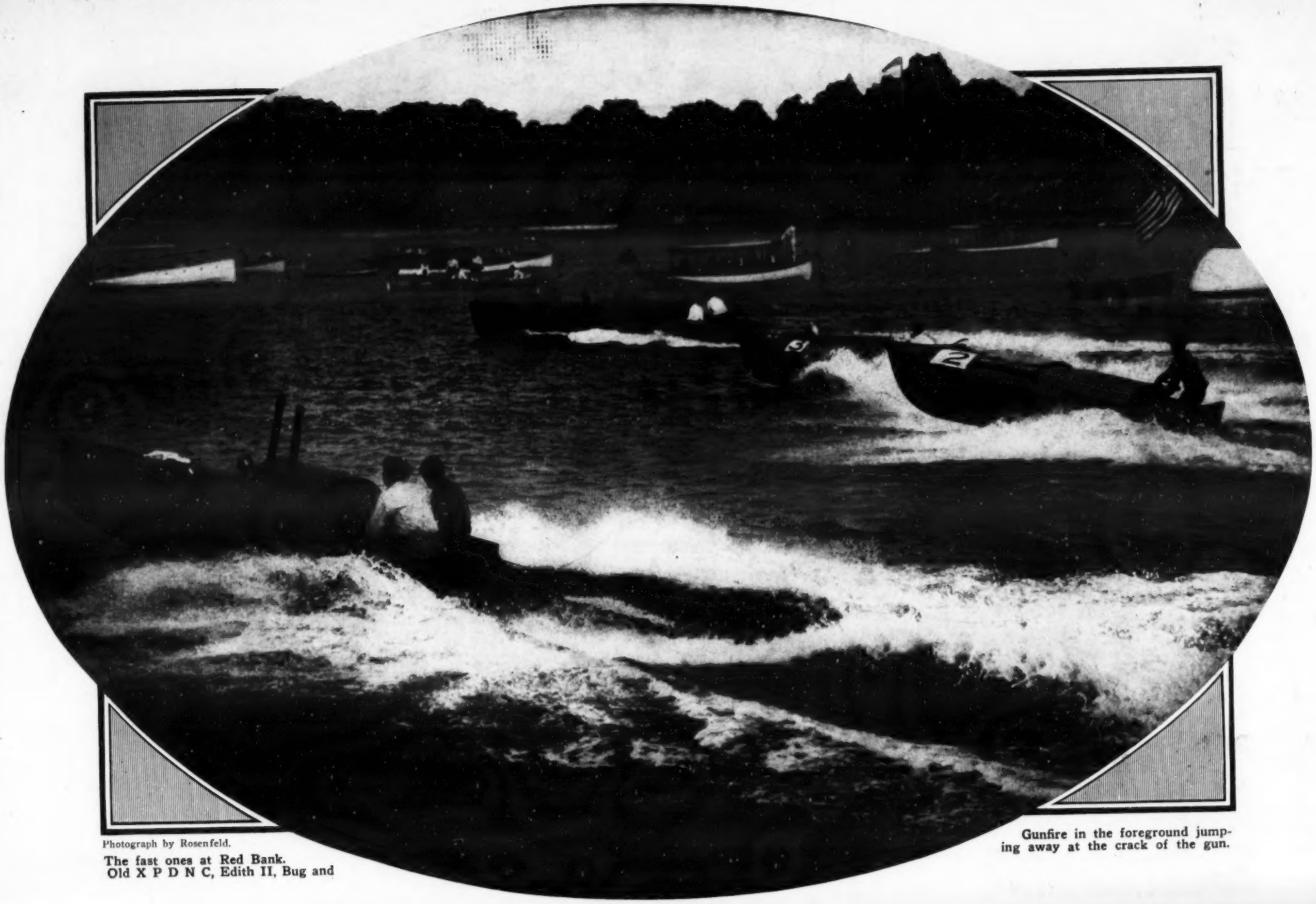
MOTOR BOATING

10 CENTS



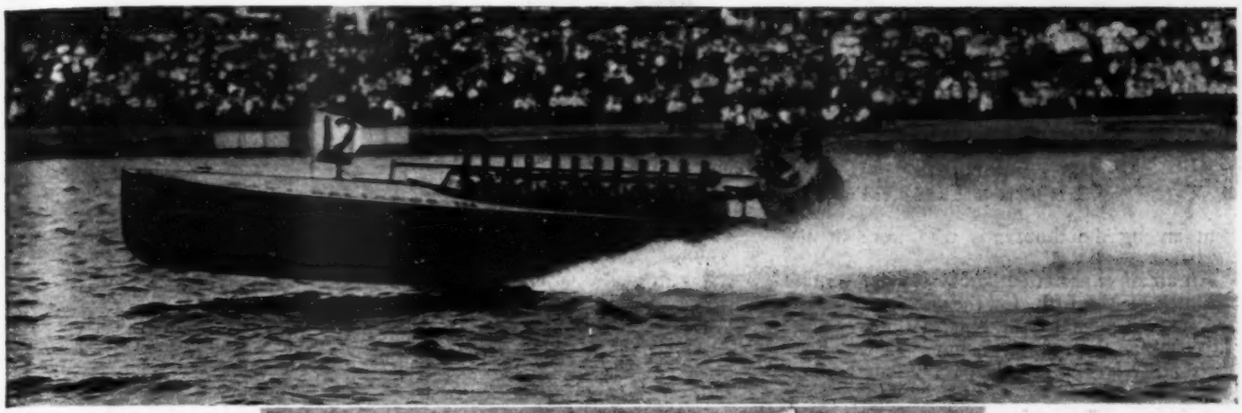


Photograph by Rosenfeld.

The fast ones at Red Bank.
Old X P D N C, Edith II, Bug and

Gunfire in the foreground jumping away at the crack of the gun.

The RACES at DAVENPORT.



Baby Reliance III, the fastest motor boat.

How Baby Reliance III, Owned by Commodore J. Stuart Blackton and Driven by J. J. Ryan, did Better Than 50 Miles an Hour at the Fifth and Greatest Annual Regatta of the Mississippi Valley Power Boat Association held at Davenport, Iowa.

By Chas. P. Hanley,
Chairman of the Racing Committee.

ALL day long on the third and away into the night the river in the vicinity of Davenport was dotted with power craft of all kinds headed for the seat of this year's annual regatta of the Mississippi Valley Power Boat Association. So fast and thickly did they gather that when the sun broke on the morning of the fourth the scene near the club house of the Davenport Boat Club was one long to be remembered. Hundreds of boats of all kinds and type were anchored in the harbor nearby, men were busy putting their boats in shape after the long cruise, here and there were campers in tents along the shore, others were in portly cruisers, still others in small open boats, a conglomerate mass, jammed in together, and all in a joyous, good-natured frame of mind. There were a thousand craft of all sorts, colors, sizes and shapes anchored there at the harbor on the morning of the fourth.

Davenport for three days was literally boat crazy! The old town awoke to the occasion, and where a month before very few in the city knew the name of a single speed boat, now every one was talking Reliance, Disturber, Wigwam, Leading Lady and scores of other names with a familiarity as though motor boat racing were an old story with the folk of Davenport.

With a thousand boats and fifty thousand spectators, the annual regatta develops into tremendous proportions. Everything is on the same big scale. Immense grandstands are erected on the banks overlooking the race-course for the spectators, a paddock is provided for all racing boats, even the judges and press stands are fitted with telephone and telegraph and United States officials patrol the course, keeping it clear for the racers.

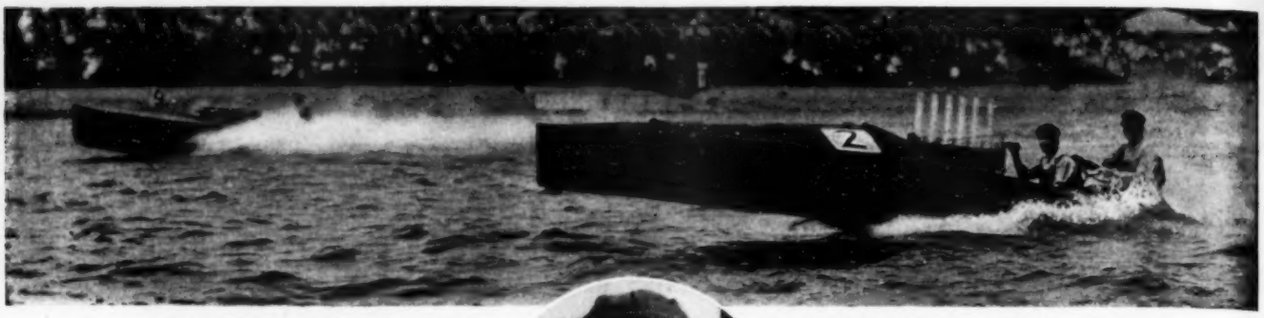
The water was smooth on the morning of the fourth, with no promise of a storm, the speed boats were busy tuning up, and a large field of racers was ready for the crack of the starting gun.

Commodore Pugh (on right) built Disturber III to defend the Valley Championship, but she had not been thoroughly tried out and developed trouble that kept her from racing.

The first race of importance, the twenty-foot free-for-all, was called at 1:30 p. m., and brought out Baby Reliance I, Baby Reliance III and Leading Lady. Both the Reliances are owned by J. Stuart Blackton, of Brooklyn, N. Y., and were in charge of John J. Ryan, of Algonac, Mich. At the crack of the gun one could see that the Ryan boats were to have everything their own way in this race. They ran away from Leading Lady; Reliance I finished first, making the fifteen miles at the very ordinary rate of twenty-eight miles per hour.

An hour later the thirty-two-footers were called. This offered possibilities for some fast time, as Wigwam II, of Astoria, Oregon, was eligible to compete in this race against the two Reliances. Wigwam II came from the far West claiming all kinds of speed and records, and we admire the spirit that sent her, yet when she tried her speed against the Reliances she looked as though she were standing still. At the start the Oregon boat had the lead, which she maintained for about a quarter of a mile, but after that Ryan got his Baby humming and off he went into the lead like an express train. Both Reliances seemingly played with each other and with Wigwam. Reliance I won at the rate of thirty-four and three-tenths miles per hour for the twenty miles.

The last race of the afternoon was limited to three-cylinder boats, this being one of the newly established classes of the Association. The race furnished much closer competition than the two former races and reminded one of the early days before hydroplanes were thought of and twenty miles an hour was a record. The race brought out a large field and helped amuse the spectators. The glorious fourth for the regatta visitors ended with a huge display of fireworks on the river. The day was marked by the absence of a single acci-

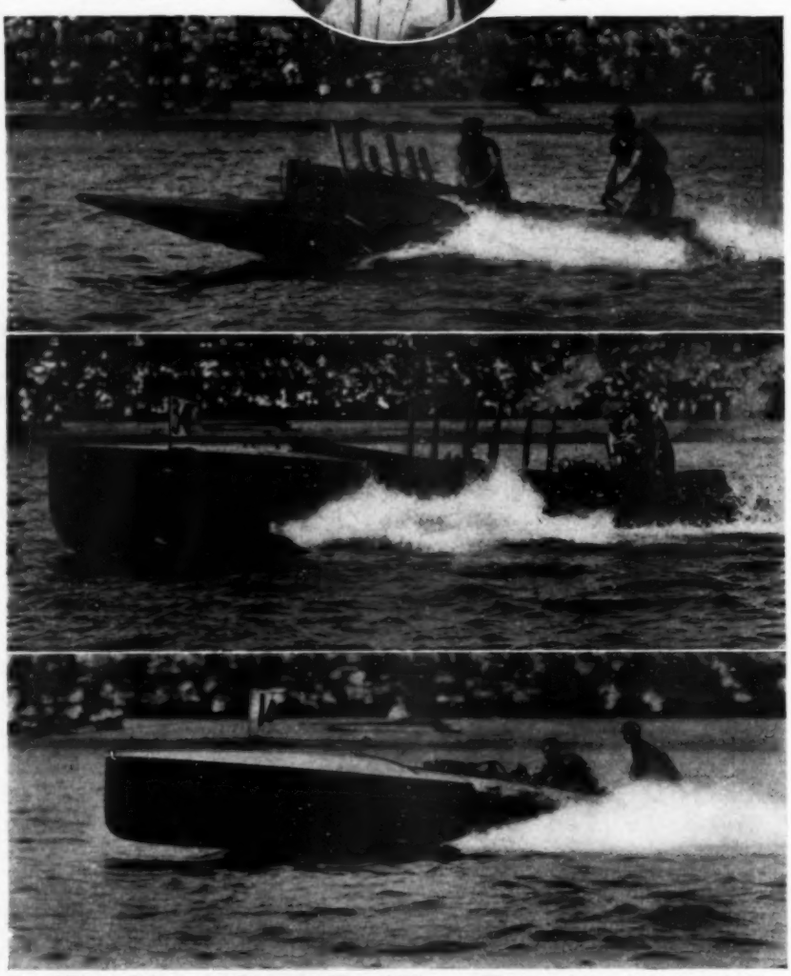


Baby Reliance and Leading Lady starting in the 26-foot class.

dent among the thousands who were in attendance.

An air of expectation had possession of the boatmen on the fifth, for the program had as the feature event of the regatta the free-for-all championship of the Valley. In this race the mighty Disturber III, a forty-foot Fauber hydroplane, powered with two Van Blerck motors aggregating 500 horsepower and 24 cylinders, was to make her maiden appearance. Disturber III is owned by James A. Pugh of Disturber II fame. Mr. Pugh shipped his new speed craft from Chicago to Davenport without having had time for a trial run. He knew as little of the possibilities of his boat as any one spectator among the thousands, yet she was to run in the great championship race against the Reliances. Imagine the disappointment when on a trial run she developed a hot bearing at the strut hanger, putting her out of the race, and leaving the Reliances with a clear field. No one in the many thousands, however, felt more keenly the disappointment than did the owner, Mr. Pugh. And right here, let me say that Mr. Pugh built Disturber III at a cost of around $35,000 for the purpose of defending the Valley championship cup of which he was the holder.

J. J. Ryan, who drove the Baby Reliances at phenomenal speed.



Regal Tiger, Chicago (ex Disturber II) and Wigwam II, the 26-footer from Astoria, Ore.

The racing on the fifth was opened at 8:30 in the morning by the full cabin cruisers being sent on their long grind of sixty miles to Muscatine and return. The race was finished about two o'clock in the afternoon. The Alamo, of Clinton, winning by a close margin over Dure III, of St. Louis. The Mildred Marie finishing third. The winning boat averaged better than fifteen miles per hour.

The first speed contest of the day was called at 1:30: Class D, 20 miles, for the 26-foot championship. In this race, as before, Baby Reliance had it all her own way, winning easily over Wigwam II and Leading Lady, in 33 min. 28 2-5 sec., or at the rate of 35.9 miles per hour.

Class I race for two-cylinder boats was next called and proved to be an uninteresting event, being won by Borum Jeric with Jewel II trailing on behind.

And then came the big championship affair with Baby Reliance III, Chicago (formerly Disturber II), and Wigwam as the competitors. Many thought that the old Disturber would be able to hold the Ryan boat, but at the crack of the gun it was all off, as far as a close race was concerned. Baby Reliance III seemed simply to lift herself out of the water, so fast did she travel, completing the first five miles at a rate of 40.5 miles per hour, as compared with Dixie IV's rate of 40.4 at Huntington Bay last year. Ryan's boat was not pushed at any time during the race, and ran the twenty miles without effort, winning by more than five miles over old Disturber II or the Chicago. Just in front of the Judges' stand, and as she passed the old Disturber, Ryan seemed to let the Babe out, for she seemed fairly to fly past last year's champion.

While this year's championship race was devoid of close competition, owing to the remarkable speed of Ryan's boat, yet it established a new record.

After the championship race Mr. Ryan promised something sensational for the Mile Speed Trial—at least 50 miles per hour.

The course was cleared, the mile was laid out by the Government engineers, timers and starters were ready, Baby Reliance III with its 12 cylinders and driven by Mr. Ryan himself, headed for the starting line. On she came at a speed never before witnessed on water, at the flash of the gun she seemed fairly to rise out of the water, and despite the fact that her driver was compelled to slack her speed in order to keep from hitting a small boat that started across her course, she passed the finishing line with the three watches showing that she had completed the mile in 1.07, or at the rate of 53.73 miles per hour—a new world's record.

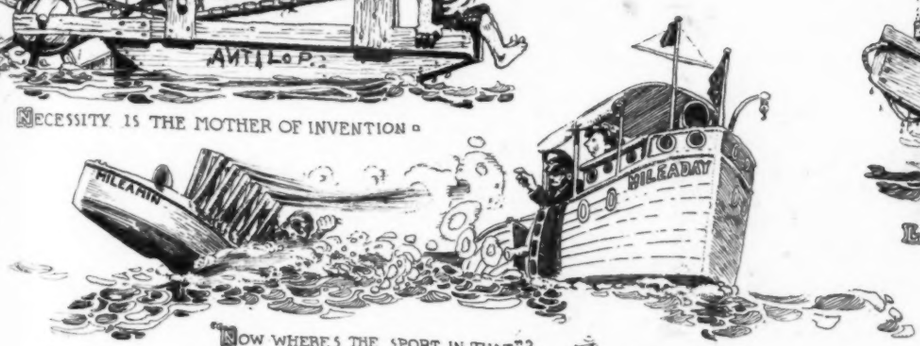
To look at this wonderful boat there appears nothing remarkable about her whatever; in fact, her hull at rest

(*Continued on page* 36.)

THE GAME AS IT IS PLAYED

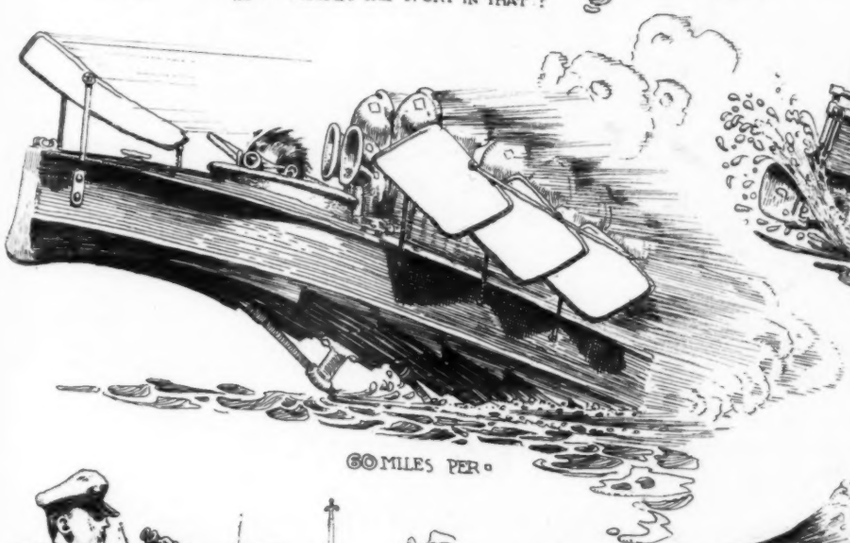
By
WILLIAM
HARNDEN
FOSTER

NECESSITY IS THE MOTHER OF INVENTION.



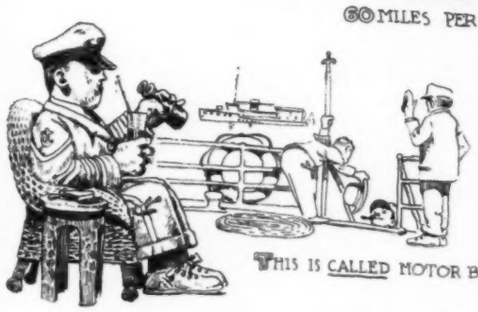
"NOW WHERE'S THE SPORT IN THAT"?

LEAVING THE SHIP IN A SINKING CONDITION.



60 MILES PER.

A GLIMPSE INTO THE FUTURE.



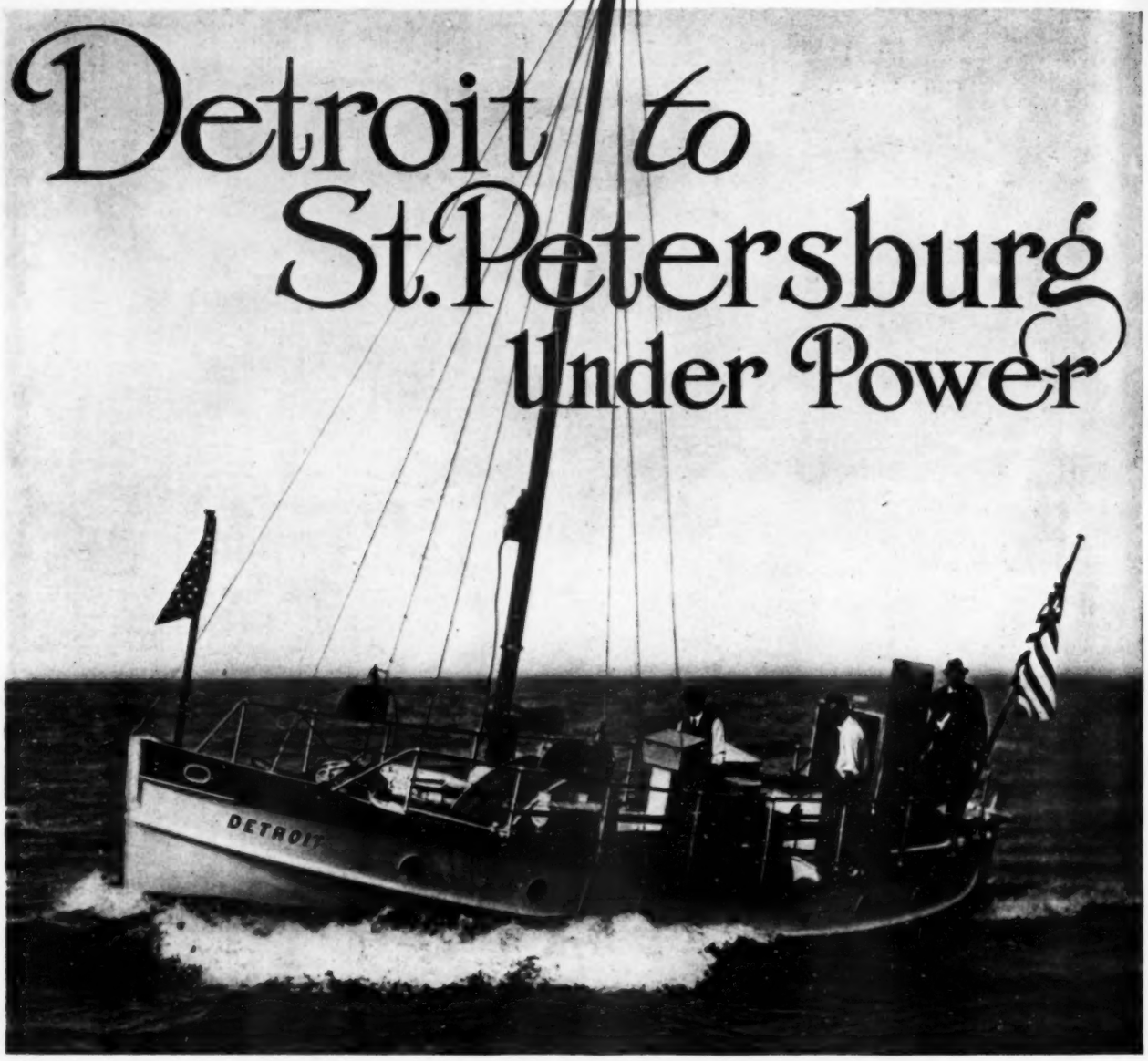
THIS IS CALLED MOTOR BOATING —

— THIS IS MOTOR BOATING —

THE SPEED-MANIA

William Harnden Foster
1912

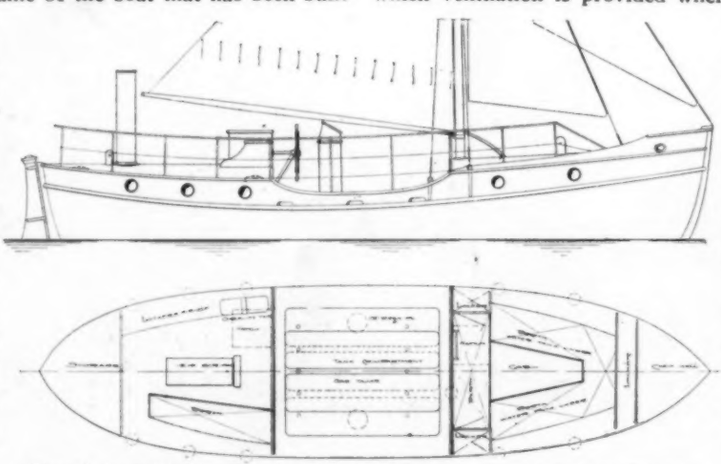
Detroit to St. Petersburg Under Power



A Description of the Sturdy 35-Foot Motor Boat, Detroit, Designed and Built Especially to Make the Passage of the Western Ocean.

CROSSING the Western Ocean in a motor boat, while it has already been done, is still a novel enough undertaking to command universal attention. It is through the experience gained on such cruises as this as well as our long distance ocean races that the American motor cruiser has been developed to its present state of excellence.

Detroit, for this is the name of the boat that has been built to make the passage, is an extremely interesting little 35-footer. She was designed and built by the Matthews Boat Company of Port Clinton, Ohio, for Commodore W. E. Scripps of the Detroit Motor Boat Club, and in both design and construction is thoroughly well able to stand the trip. The hull is of the lifeboat type, somewhat sturdier than the whaleboat, and is powered with a 12 H. P., two-cylinder Scripps motor of the four-stroke type. The decks forward and aft are raised with a flush deck amidships, from which the boat is controlled. Special attention has of course been given to the deck openings, the interesting construction of which is shown in the photographs, as safety on a cruise of this kind depends primarily upon the ability to keep the water out. Over the engine compartment aft is a tall stack through which the exhaust is led and by which ventilation is provided when the hatches are battened down.



Detroit is divided into three compartments by two watertight bulkheads.

The boat is divided into three absolutely watertight compartments, the forward one is the living quarters of the crew and is 8 ft. 5 in. long with 6 ft. headroom. The storage compartment of lower headroom amidships is 9 ft. long and contains the five gasoline tanks with an aggregate capacity of 1,000 gallons. The after compartment is the engine room.

The greatest problem in a cruise of this length is that of fuel storage, and besides the 1,000 gallons carried in the main tanks

there are two 100-gallon tanks on deck which with another 100 gallons which will be carried in 5-gallon cans, will bring the total capacity up to approximately 1,275 gallons. The daily consumption running at moderate speed, will be about 48 gallons, so that the fuel will be sufficient for about 25 days. Her speed loaded is approximately 5 knots, which brings the average daily run to about 140 miles. The passage from New York to Queenstown should therefore be made in 20 days, although sufficient food and water will be carried for ninety days.

The fuel feed plant has been carefully worked out and is patterned after that of Ailsa Craig, the old Bermuda racer. The gasoline will be fed from the main tanks into a 10-gallon auxiliary tank in the engine room by air pressure. From the auxiliary tank it is fed to the engine by gravity. Electricity is used for lighting, both for the interior and for the running lights, lessening the danger from fire, and smoking will be prohibited during the run.

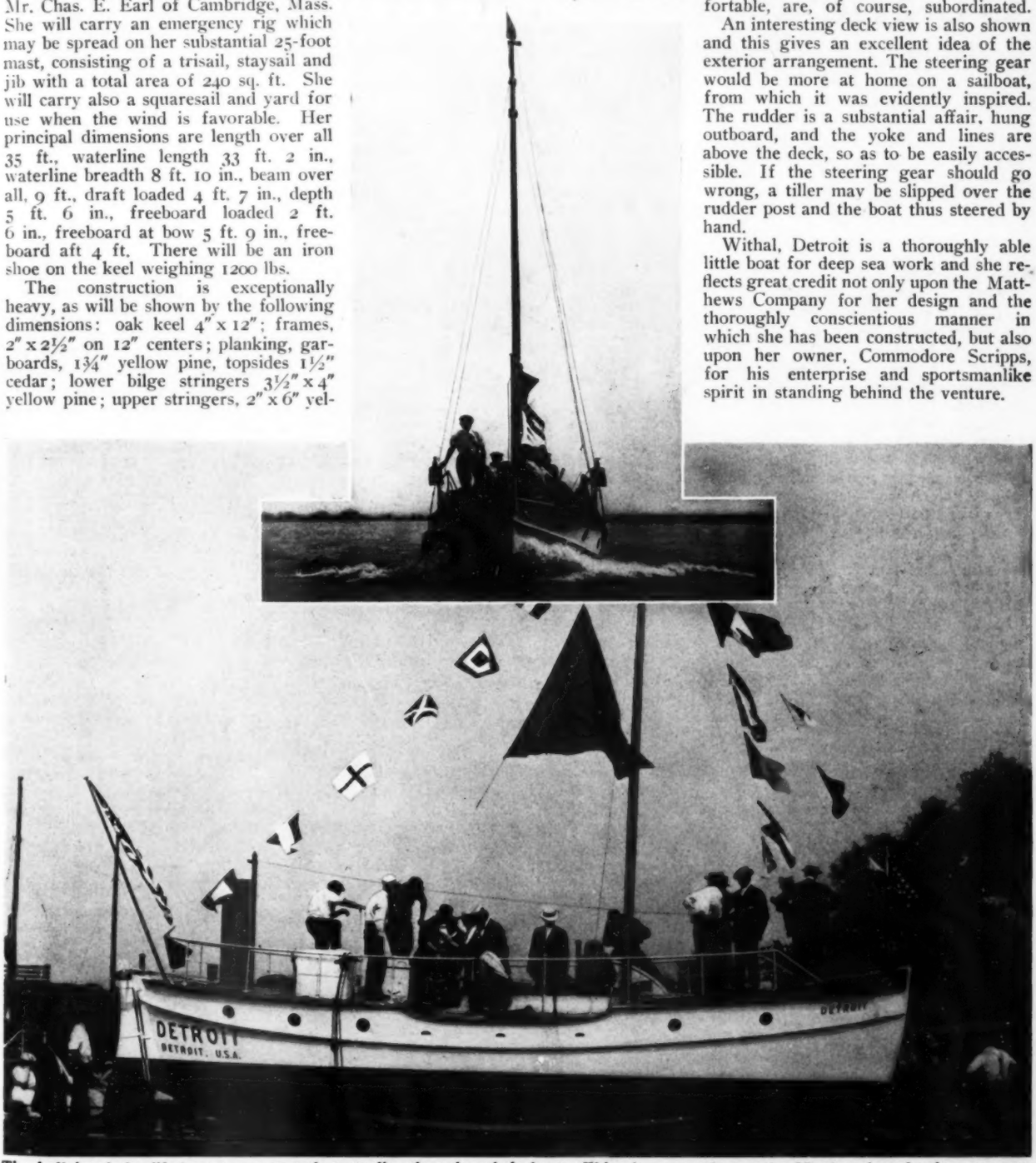
Detroit will be navigated by Mr. T. F. Day, who will take a crew of four, including Mr. Walter Morton of Detroit and Mr. Chas. E. Earl of Cambridge, Mass. She will carry an emergency rig which may be spread on her substantial 25-foot mast, consisting of a trisail, staysail and jib with a total area of 240 sq. ft. She will carry also a squaresail and yard for use when the wind is favorable. Her principal dimensions are length over all 35 ft., waterline length 33 ft. 2 in., waterline breadth 8 ft. 10 in., beam over all, 9 ft., draft loaded 4 ft. 7 in., depth 5 ft. 6 in., freeboard loaded 2 ft. 6 in., freeboard at bow 5 ft. 9 in., freeboard aft 4 ft. There will be an iron shoe on the keel weighing 1200 lbs.

The construction is exceptionally heavy, as will be shown by the following dimensions: oak keel 4″ x 12″; frames, 2″ x 2½″ on 12″ centers; planking, garboards, 1¾″ yellow pine, topsides 1½″ cedar; lower bilge stringers 3½″ x 4″ yellow pine; upper stringers, 2″ x 6″ yellow pine; decking 1½″ pine canvas covered; deck beams over tank compartment, 3″ x 4″; forward and aft 1½″ x 3″; crown 7″ forward and 8″ aft.

Detroit arrived in New York waters on Saturday, July 13th, after a leisurely run from Detroit through Lake Erie and the Erie Canal, and she left the next day from the New Rochelle Yacht Club. Pictures taken at the time of her departure are shown on page 49 of this issue, and form an interesting supplement to those shown herewith. Considering the difficulties under which the photographer had to work, the one of the engine room is particularly good and shows clearly the systematic manifold arrangement for controlling the fuel supply from the seven gasoline tanks. The gravity tank leading directly to the carbureter is shown on the right of the picture, and the generator which furnishes the current for the electric light system, is mounted on the starboard side of the engine. Perfex ignition has been employed with the current supplied by a Bosch magneto, completely housed in and not shown in the photograph. The cabin accommodations, while comfortable, are, of course, subordinated.

An interesting deck view is also shown and this gives an excellent idea of the exterior arrangement. The steering gear would be more at home on a sailboat, from which it was evidently inspired. The rudder is a substantial affair, hung outboard, and the yoke and lines are above the deck, so as to be easily accessible. If the steering gear should go wrong, a tiller may be slipped over the rudder post and the boat thus steered by hand.

Withal, Detroit is a thoroughly able little boat for deep sea work and she reflects great credit not only upon the Matthews Company for her design and the thoroughly conscientious manner in which she has been constructed, but also upon her owner, Commodore Scripps, for his enterprise and sportsmanlike spirit in standing behind the venture.



The hull is of the life boat type, somewhat sturdier than the whale boat. This view was taken at the Matthews' yard a few moments before her launching.

Six of the eighteen Albany racers well bunched at the start.

Up the Hudson and Down Again.

The Interesting Story of How Thistle Broke the Record from New York to Albany and Return by Playing the Tides and Local Currents of the Hudson.

By Chas. F. Chapman.

There are two ways of winning motor boat races. One is by building a "rule beater" in order to obtain hours and hours of time allowance over the other boats. The other way is to prepare for the race thoroughly and to run it scientifically by striving over every inch of the course to take advantage of each opportunity for gain. In tidal waters, especially on the Hudson River, success depends largely on playing the tides and local currents, and this account of how the record was broken by this method is not only extremely interesting but valuable to every racing skipper.—Editor.

ANOTHER Albany Race is history and once again this annual fixture goes down as the greatest in number of entries of any long distance cruising race of the season, even though the number of starters was slightly below that of last year. However, the calibre and class of the contesting boats was above that of last year and although the conditions for fast time were far less favorable, yet the performances were very consistent and the average time better than in 1911.

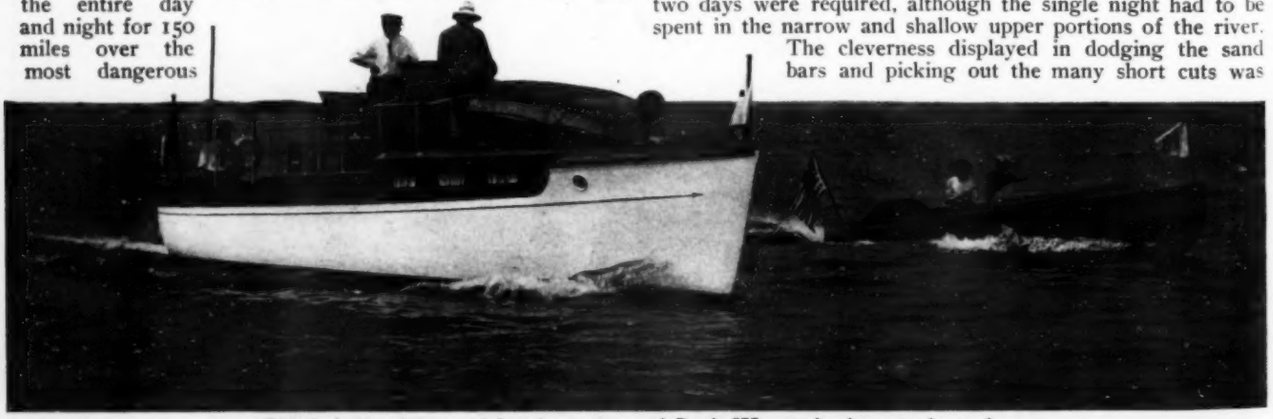
Thistle, which was beaten by three minutes last year for the record, bettered her previous time by 29 minutes, thus establishing a new record for the course of 235 nautical miles. Monreve, the 1911 winner, was not entered this year and Respite, which was second a year ago, moved up a peg and carried off the corrected time honors by a good margin over Marinette, a new boat, which easily took second place.

In the open boat class the old reliable Bunk III was again the winner; in fact her pace was so fast that the two other boats in her class were forced to withdraw before one-fourth of the distance had been covered, and Bunk finished the race over five hours ahead of her elapsed time of last year. This remarkable gain is due to a little strategy on the part of Bunk's crew, who believed that consistency and endurance rather than any extreme burst of speed would be a large factor in determining the winner in the open boat class. A 34-hour race is a pretty long grind for a crew of two in a 20-foot open boat through unknown waters in the night and without facilities for cooking or sleeping. Bunk chose to sacrifice a speed of a fraction of a knot and trust to the navigating abilities of the crew of one of the cruisers, so at the starting signal she fell in behind the Thistle and remained in her wake during the entire day and night for 150 miles over the most dangerous part of the course until she was compelled to make a landing to replenish her gasoline supply.

This year's race makes the fourth annual affair held over this course, which has constantly increased in popularity since 1909. Eighteen boats entered this year, every one of them starting, and the Regatta Committee, especially Chairman F. W. Horenburger, are to be congratulated on the way they handled the race, to the satisfaction of all. They deserved credit for drawing up a set of conditions that kept the contestants on a uniform basis with an equal chance for each to win and the idea of giving a prize to each boat finishing within a certain time limit seems to be a popular one, having much to do with the large number of entries. The boats were all measured by the official measurer of the club holding the race, thus assuring consistent ratings at least. The handicaps and time allowances were all figured the day before the race and furnished to the captains before the start instead of many hours after the finish, as is generally the custom in many races.

The spirit of the club members and some of its officials was not in keeping with the rest of the race, as little effort was made to entertain the many visitors that were present on the occasion, and those that came in their boats expecting to find anchorage and hospitality shown them were in many cases disappointed. The younger clubs, especially those interested principally in power boating, have much to learn from their sailboat cousins in the matter of true club spirit.

The start this year was made at 10 a. m., which is a departure from the practice of the last three years of starting the boats in the evening, and proved a welcome change, for instead of two nights and one day of sailing, one night and two days were required, although the single night had to be spent in the narrow and shallow upper portions of the river. The cleverness displayed in dodging the sand bars and picking out the many short cuts was

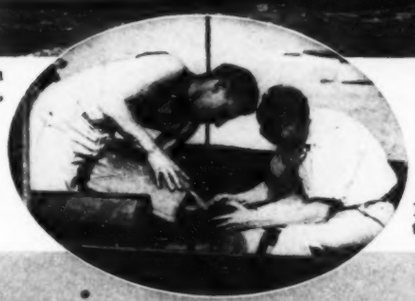


Thistle broke the record for the course and Bunk III won in the open boat class.
Thistle, with her 30 h.p. Sterling engine, is a Swasey-Raymond & Page design and Bunk III, with a two-cylinder Watertown engine, was designed by Morris M. Whitaker.

remarkable, even though it did prove the undoing of one or two boats.

The start was a beautiful one, all of the eighteen boats getting off together at the crack of the pistol and to us on the Thistle it appeared that there was no choice for first boat over the line, but those on the committee boat decided Narcissus led by a foot. For the first few miles the boats were well bunched, but after that each settled down to a steady pace and aside from a few brushes between individual craft during the day the race became more or less of a procession, and it was a case of engine and crew endurance more than anything else.

Respite, equipped with a 20 h.p. Ralaco engine, winner of first prize.



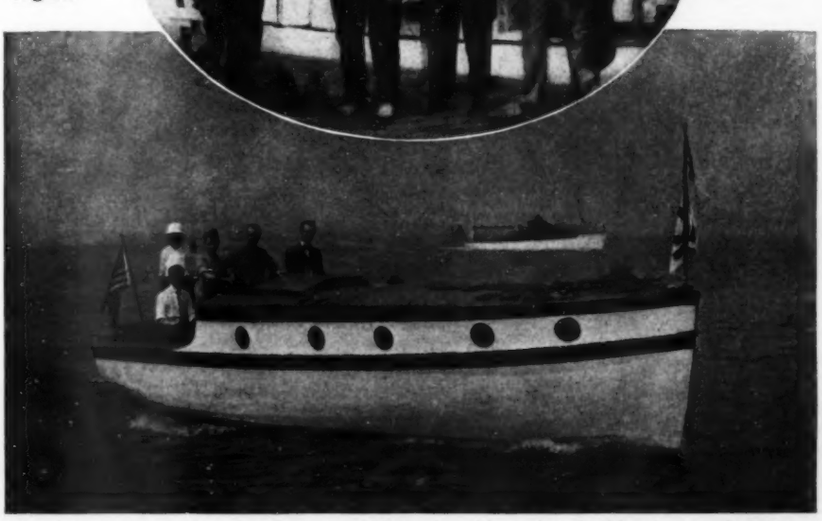
Filling Arlington's tanks before the start.

Thistle took the lead in the cruiser class, although Merlin, the scratch boat in the open boat class, was faster and led the fleet until engine trouble forced her to withdraw at Newburgh. Thistle was never headed and gradually opened up the distance between the next boat, until by noon it was just in sight astern. Respite, although rating much lower than many of the slower boats, came along second, with Marinette, Rosina, Narcissus and Oeyeesee pushing her hard for that position.

Marionette, winner of second prize, is driven by a 3-cylinder Ferro engine.

Crews of the Merlin and Bunk III, two of the open boats.

We had drawn up a schedule for Thistle's time of passing the various points along the river with a correction applied for tidal currents during the race, and this showed us that to break the record, which was our main desire, as Thistle has no chance to win under the A. P. B. A. rules, we must better our schedule by about 15 minutes for the entire run. To do this we must take advantage of every current possible besides all the short cuts. As the start was just after high water and as the current should run up stream in the center of the river for about two hours after high water, we held our course in the channel to receive all possible benefits from the current. Thistle's normal speed is ten miles and we had counted on a flood current of 1.25 miles per hour at this time, but were disappointed, for we found it was practically slack water at the time and at Tarrytown we were 20 minutes behind our schedule, having been helped along by a .3-mile current only, which by the time Stony Point was reached at just 1 o'clock, had entirely disappeared and was ebbing.

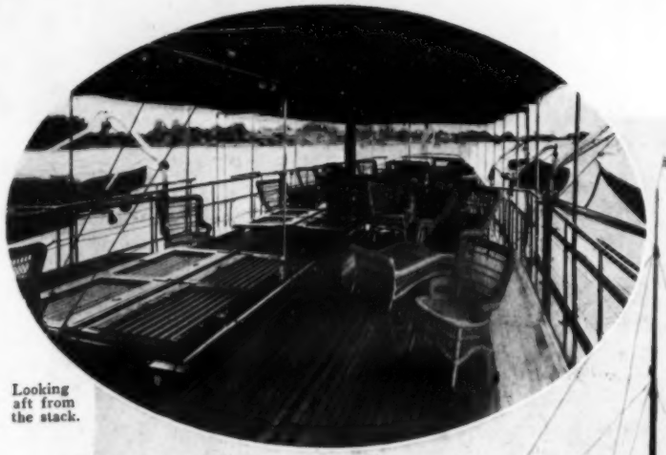


Narcissus was built by her owner, Geo. Moore, and is equipped with a four-cycle Palmer.

Through the Highlands we had expected a head current, and we determined to take advantage of every eddy to make up for time lost, so we kept within a few feet of the shore, changing our course from one side of the river to the other at each bend to keep behind the lee points. At Newburgh, 50 miles from the start, which we reached at 3:05, we had made up five minutes of the lost time by our tide-beating methods, and at Poughkeepsie, 15 miles further on, we were credited with another five minutes. Often we were so close to shore that one could have stepped aboard with little effort, and even though our course was miles longer than the straight one, we were making much better time.

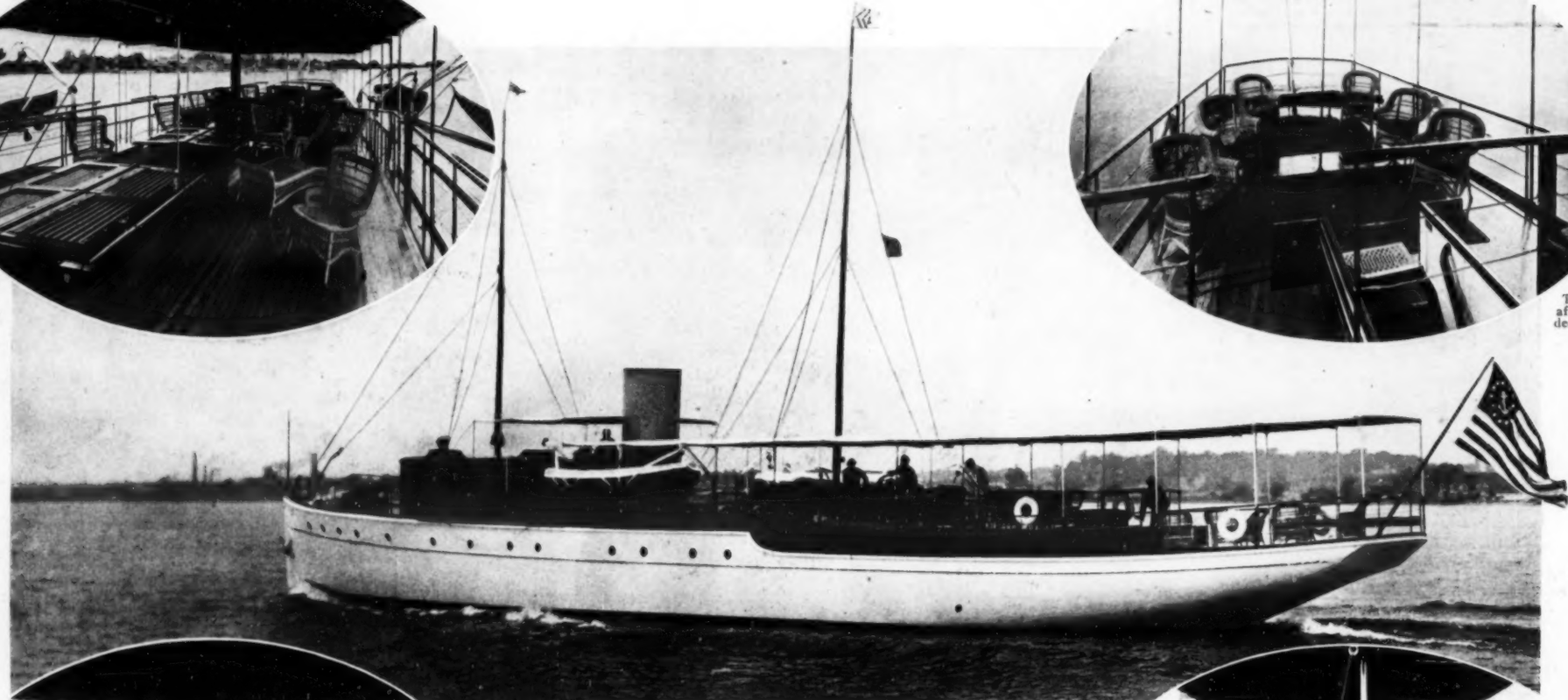
Thistle normally has a gasoline tank capacity for 90 gallons, which is sufficient to drive

(*Continued on page 42.*)



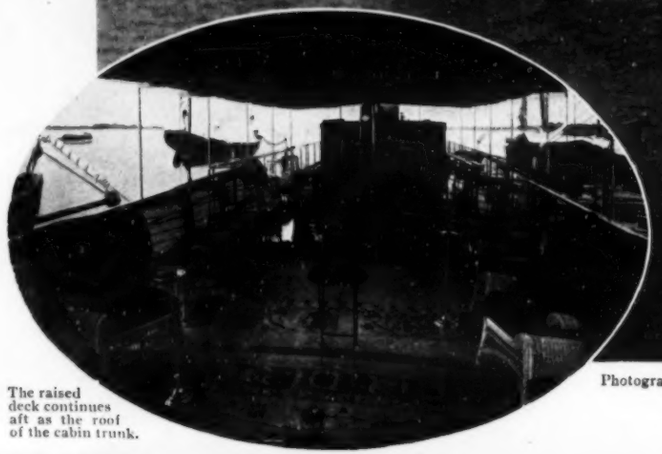
Looking aft from the stack.

The after deck.



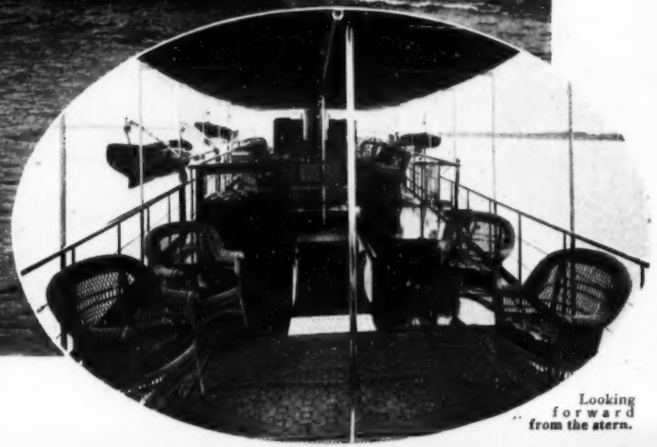
Lady Betty.

Length over all .....123 ft. 9 in.
Length on waterline .....112 ft.
Beam.....18 ft. 6 in.
Draft.....5 ft. 9 in.
Power plant—two 100 h.p. Twentieth Century motors.



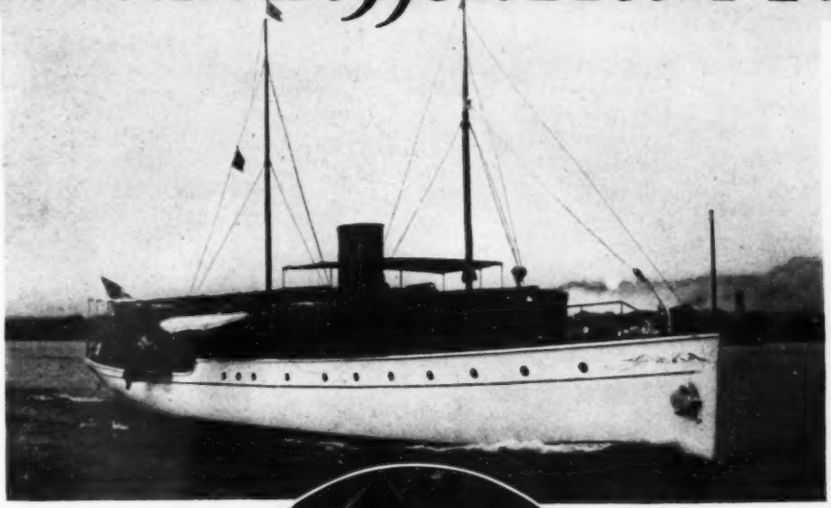
The raised deck continues aft as the roof of the cabin trunk.

Photographs by Levick.



Looking forward from the stern.

Lady Betty
The Season's Biggest Motor Yacht



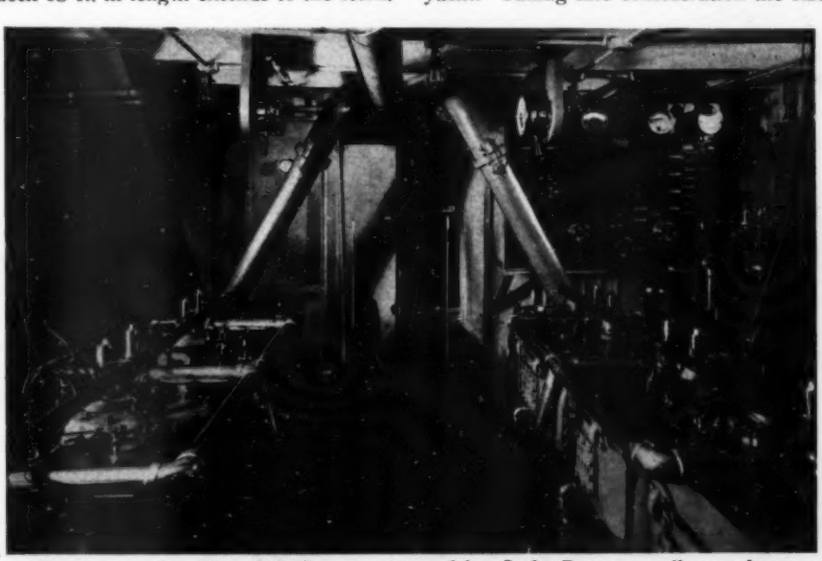
THE twin-screw motor yacht Lady Betty, recently completed at the works of the New York Yacht, Launch & Engine Company from designs by Gielow & Orr of this city, for Mr. Walter Lippincott of Philadelphia, is a notable addition to the fleet of motor yachts on the Atlantic seaboard. She is the largest motor yacht built for the season of 1912, her principal dimensions being: Length over all, 123 feet 9 inches; length on load waterline, 112 feet; beam, 18 feet 6 inches, and 5 feet 9 inches draught. The dimensions of this yacht have been determined with a view to securing thorough seagoing qualities and at the same time obtaining a good boat for ordinary summer yachting.

The well protected bridge.

The hull is constructed in a thoroughly substantial manner. The keel, stem and sternpost are of seasoned white oak with keelsons, bilge stringers and engine keelsons of yellow pine. The frames are of selected white oak, cut out of natural grain wood and of thoroughly substantial proportions. The deck beams are of white oak, and the deck of white pine; the outside planking is of yellow pine in long lengths, and all fastenings are of copper, composition, and Tobin bronze.

Forward for a distance of 58 feet the sides of the hull are carried up to the raised deck. Aft of this, for a distance of 30 feet, is a teak cabin trunk, 18 inches in height, with plate-glass windows in the sides, affording fine lighting and ventilating facilities. A flush deck 18 ft. in length extends to the stern.

Below deck forward, the space immediately aft of the collision bulkhead, for a distance of 26 feet fore and aft, and extending the full width of the vessel, is occupied by the crew's quarters, staterooms for captain, engineer, cook and steward, and also an officers' mess room. These quarters are well ventilated, and fitted with liberal wardrobes, transoms, lockers, bureaus and lavatories.



Her two 100 h.p. Twentieth Century motors drive Lady Betty 14 miles an hour.

Immediately aft of this comes the engine room, 13 feet in length, and extending the full width of the boat. At each end of this space is a steel watertight bulkhead, to make the boat as nearly fireproof as possible. Aft of the engine room comes the galley, and aft of this the gasoline tanks, all enclosed in steel watertight bulkheads.

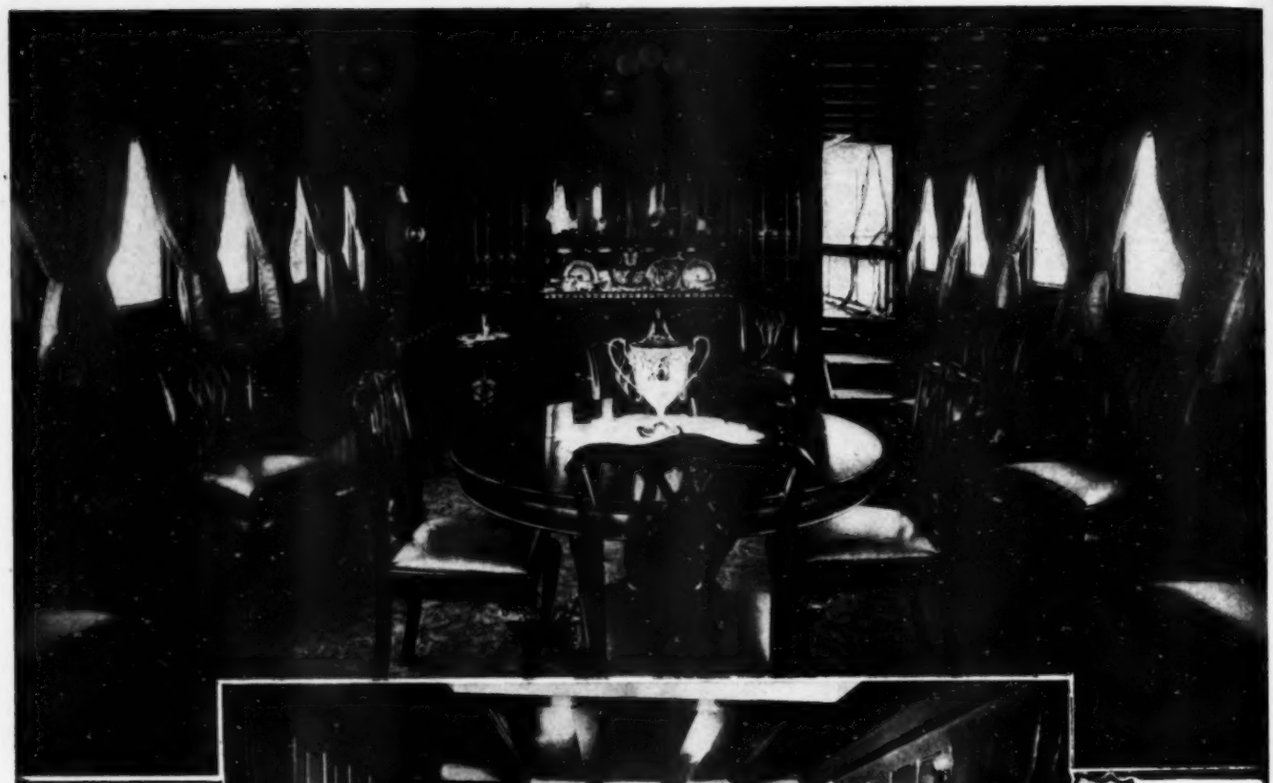
Next aft comes the saloon, 10 feet in length, and aft of this there is a steerage with stairway to deck, and then five single staterooms, one double stateroom, two bathrooms and one toilet room. The whole of the interior is done in panel work, finished in ivory white; all the furniture, fixed and portable, is of mahogany, finished bright, and the plumbing is of the latest and most approved open type, with nickel-plated mountings and fixtures.

The dining-salon is forward, on deck, 22 feet in length and with an average width of 12 feet, fitted with a sideboard and buffet in the after end. There is a stairway leading up to deck, and another one leading down to the owner's quarters below. The upholstery, carpets, hangings, etc., are of the best material, all arranged in a harmonious color scheme.

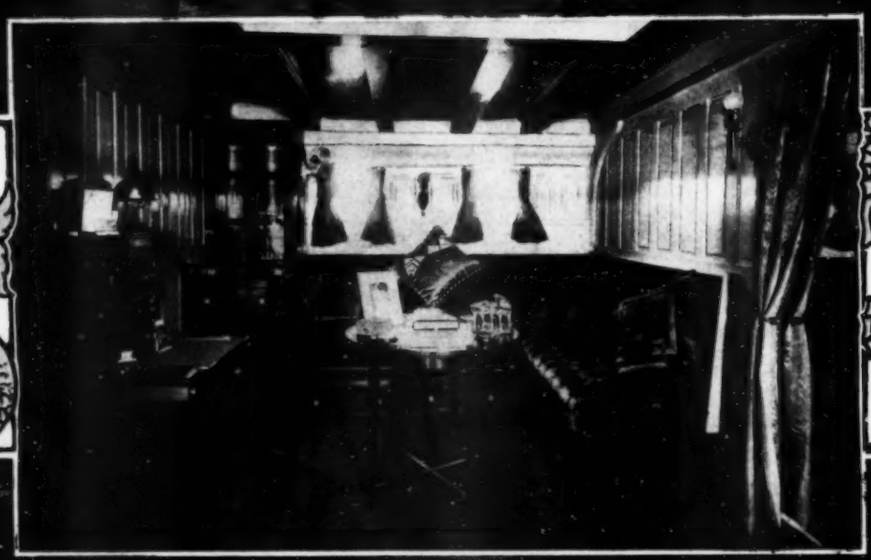
The skylights, deck house and all wooden deck structures are of teak, finished bright.

The propelling machinery consists of two six-cylinder, 100-horse-power Twentieth Century motors, driving manganese bronze propellers specially designed by Mr. Gielow for this yacht. Taking into consideration the size and substantial construction of the yacht, together with the comparatively small power the speed of this yacht is remarkable, as she exceeded 14 miles per hour on her trial trip.

Lady Betty will be equipped with three boats: a power launch, a cutter and a dinghy. She is equipped with an electric lighting plant, fans and searchlight, a heating plant, an electric windlass, and in fact all modern devices and appliances that can add to safety and personal comfort.



The large dining saloon in the deck house.



The comfortable lobby, below deck.

Interior views of Lady Betty, the season's biggest motor yacht, described on the preceding page. The owner's stateroom.

The Regatta at Red Bank.

One of the Season's Most Successful Race Meets Admirably Conducted by an Organization but One Year Old.

THE Red Bank Motor Boat Club, which is located at the head of the Navesink River, and a club just one year old, conducted a series of open races on Independence Day that was in every respect one of the greatest one-day events ever held in the East. The collection of speed boats that was brought together was by far the best of the year and the arrangement and management of the races left little to be desired. Not a protest was entered and if there were any criticisms, they were not made known to the officials.

The rulings of the Regatta Committee as to what constitutes a hydroplane, deserve mention, for Vita and Edith II, boats that have been accepted as out and out displacement boats in many regattas and were entered as such in these races, were declared hydroplanes by the committee, inasmuch as they were equipped with side lifting planes or fins at or just below the waterline. Although the captains of both boats claimed that any gain in speed due to these attachments was doubtful, yet Vita gracefully entered the hydroplane class and Edith II hauled out, removed her planes, became a true displacement boat in the eyes of the law and carried away the cup in her class.

Another ruling that seemed to be received favorably was the permission to carry a crew of one man only in any of the boats, should the captain so desire. Most of the boats, especially the hydroplanes, took advantage of this rule and raced with only one man aboard.

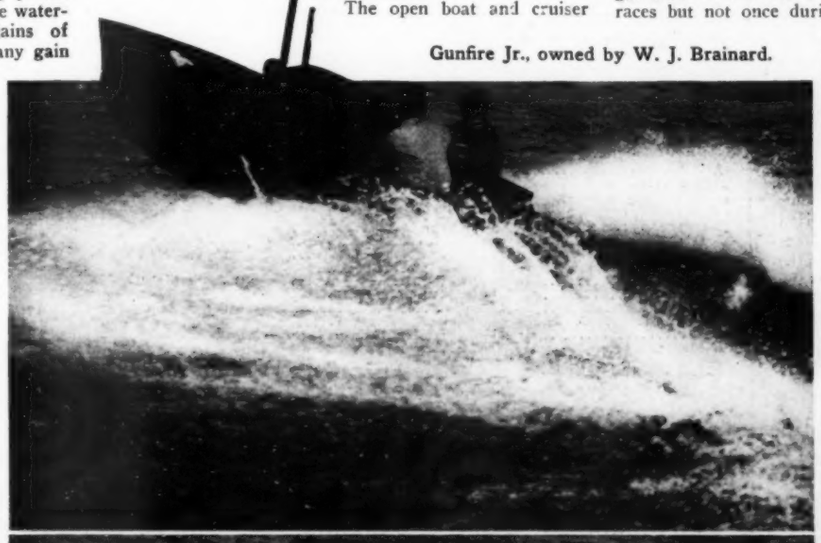
The waters at Red Bank are ideal for racing, being practically closed in on all sides. There is no quarter from which the wind might blow that would cause a disturbance and the river is entirely free from the objectionable drift that is present on many courses. The depth of water is not excessive and this may have troubled some boats, but this particular course was laid out so that its entire length was visible from the clubhouse and this objection could be avoided by laying out a longer course. Everything taken into consideration, the Navesink River seems to have great possibilities as an excellent race course for the more important races and has many points in its favor as a place for holding the Manufacturers' Carnival in the fall. The Race Committee arranged to meet boats from other clubs at Sandy Hook some 10 miles from the starting point and pilot them up the river, which was taken advantage of by many of the owners.

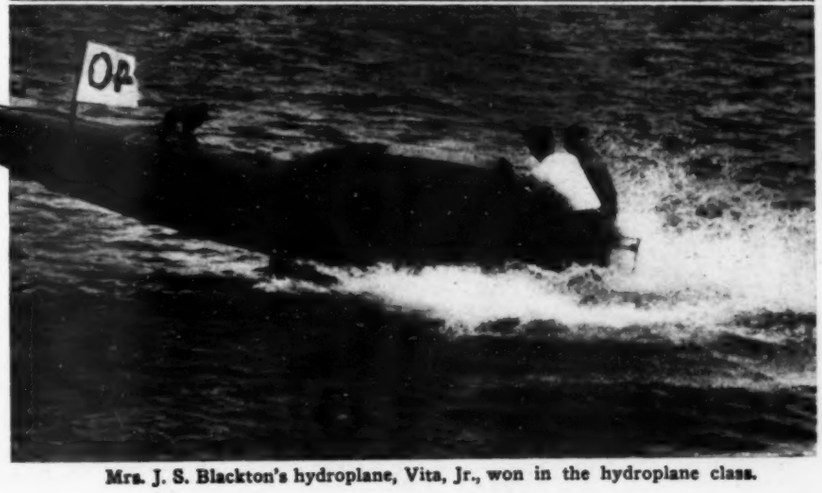
The open boat and cruiser classes were sent away in the morning. While the former was not especially interesting because a boat rating 27 was pitted against one rating over 50, yet the cruiser class was a dandy. The boats were all handicapped according to the A. P. B. A. 1911 rules and were sent away in the order of their handicaps. They were all informed of their starting time and 30 seconds before the signal to go, their number, printed on a large card, was displayed from the committee boat and lowered at the starting gun. The system worked out finely, especially for the speed boat races in the afternoon, making the races interesting to the spectators as they knew that in every instance the first boat home was the winner.

The afternoon races were over a 2 statute-mile triangular course which had been carefully surveyed and when the first race was called at 1:30, several hundred boats were gathered within the triangle to watch the races but not once during the afternoon did any of them interfere with the course. The first race was between displacement boats of from 20 to 26 feet in length and was won by Mr. H. Coons' Artful, which maintained a speed of 18.8 miles per hour.

The free-for-all at 2:30 was the greatest race of the day and the start was a magnificent one. Nine high-powered boats started and at least half of them were over the line together with the others close behind. Words or photographs fail to describe the start shown above and in the frontispiece and one will have to go many miles before witnessing another like it. The old displacement boat X P D N C led over the first round of two miles in 4 minutes 53 seconds, with Vita Jr., Edith II, Gunfire Jr. and Muirmaid close behind. Bug dropped out before the first round as her water intake became clogged. The leaders were well bunched for the next four rounds with the gap between X P D N C and Vita Jr. gradually growing less until the sixth round, which Vita Jr. made

Gunfire Jr., owned by W. J. Brainard.





Mrs. J. S. Blackton's hydroplane, Vita, Jr., won in the hydroplane class.

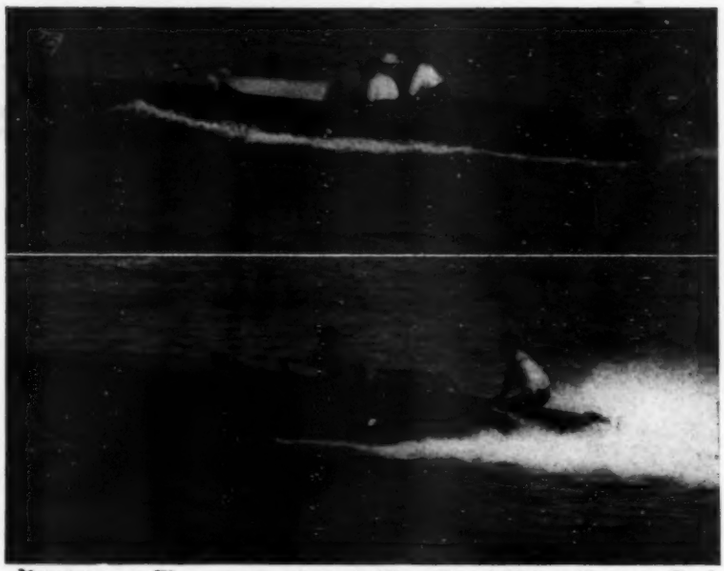
in 4 minutes 4 seconds, putting her in the lead which she held to the finish, covering the 20-mile course in 48 minutes 9 second, an average of 24.9 miles per hour and 25.3 miles per hour for the best lap. Vita Jr. is capable of greater things than this, but she had to make 30 turns aside from the water being continually stirred up by the nine racing boats, which accounted for the slow time.

The class for displacement boats between 26 and 35 feet in length brought out three starters, Ace II, Senora II and Mongoose, but the latter with her rating of only 75.6 was able to win easily, averaging 21.2 miles per hour over the 20-mile course.

Three hydroplanes started in class A, Bug, Vita Jr. and Vita. Vita, being the highest rating as well as the slowest boat of the three, was out of the running from the start. Bug, rating 59, had to allow Vita Jr., rating 53, 8 minutes 20 seconds for the course, which proved too great a handicap, for although she made up 3 minutes 14 seconds of this, Vita Jr. finished over 5 minutes in the lead, covering the course in 1 minute 37 seconds, less time than it took her in the free-for-all class. Bug averaged 27.9 miles per hour for the 20-mile course, the fastest of the day.

In the class for displacement boats of under 20 feet, Edith II had everything her own way as Gunfire Jr. did not start, owing to the fact that she carried away a strut in the free-for-all and lost her propeller on the way to the races the day before, borrowing one for the free-for-all class that did not produce the best results. Edith II, with her side planes removed, averaged 20.5 miles per hour in this race against 24.7 miles per hour in the free-for-all with her planes in place. According to this it appears that the planes were of some benefit, although it is also true that she was not pushed at all in this race and may have chosen to take things easier.

First and second prizes were awarded in each class consisting of beautiful silver cups, which were on exhibition before the races. The quality of the prizes was as excellent as the remainder of the details that made the regatta such a success. The winners in each class became eligible to compete for the Red Bank Merchants Trophy later in the season. This is a silver cup standing several feet high and must be won twice by the same owner to become his property. It is raced for under the American Power Boat Association Handicaps and last year was won by P. F. Stewart's cabin cruiser Wild Flower. Mr. Stewart was expected to win the cruiser class this year and had his race practically won until nearly the finish line was reached, when carbureter troubles forced him to withdraw.



Mongoose, an Elco express, winner in Class B, and Muirmaid, a new Doyle hydroplane with a 90-h.p. Fiat engine.

Results of the Red Bank Regatta.

CLASS F—Open Boats. 10 Statute Miles.

Boat	Owner	Rating	Start	Finish
Wa Wa	J. E. Oliver	27.00	10:00:00	11:28:30
Elise	T. Kick	50.22	10:37:05	11:32:17
Bessie	J. S. Applegate, Jr.	29.34	10:06:15	11:45:35
Bunk III	C. Firth	37.44	10:22:16	D. N. F.
Eclipse	F. Solamon	47.34	10:34:25	"

CLASS E—Cruisers. 10 Statute Miles.

Excelsior	T. Trolsen	44.64	10:49:57	12:03:06
Mohawk	E. E. Perinne	31.65	10:30:00	12:03:08
Louisa F.	Lewis Frick	32.55	10:31:56	12:03:10
Emma B.	A. Bradle	42.9	10:48:01	12:12:30
Scat	J. Morrow, Jr.	45.7	10:51:08	12:17:00
Wild Flower	P. F. Stewart	35.8	10:37:58	D. N. F.
Alana	G. D. Henrickson	33.3	10:34:35	"
Emma	M. Allaire	46.62	10:52:03	"

CLASS C—Displacement Boats between 20′ and 26′ L. O. A. 16 Statute Miles.

Artful	H. Coons	67.9	1:34:26	2:25:38
Aglaia	R. B. Duane	62.5	1:30:00	2:27:32

FREE FOR ALL. 20 Statute Miles. Start 2.30.

Vita Jr.	P. H. Blackton	3:18:09	48:09
X P D N C	J. Siegel	3:18:30	48:30
Edith II.	V. Smith	3:18:36	48:36
Gunfire	W. J. Brainard	3:22:00	52:00
Muirmaid	P. A. Proal	Did Not Finish	
Bug	A. E. Smith	Did Not Finish	
Iwin	C. P. Irwin	Did Not Finish	
Senora	H. E. Holmes	Did Not Finish	
Vita	Mrs. J. S. Blackton	Did Not Finish	

Leading boat's time for 2-mile lap, 4:53, 4:49, 4:58, 4:48, 4:50, 4:53, 4:44, 4:50, 4:45, 4:49.

CLASS D—Displacement Boats between 26′ and 35′ L. O. A. 20 Statute Miles.

		Rating	Start	Finish
Mongoose	E. D. Godfrey	75.6	3:31:25	4:27:16
Ace II.	W. Bruns	73.8	3:30:00	4:34:55
Senora II.	H. E. Holmes	80.46	3:34:54	D. N. F.

CLASS A—Hydroplanes. 20 Statute Miles.

Vita Jr.	P. H. Blackton	53.0	4:30:00	5:16:32
Bug	A. E. Smith	59.0	4:38:13	5:21:16
Vita	Mrs. J. S. Blackton	59.86	4:39:26	5:34:55

CLASS B—Displacement Boats under 20′. 16 Statute Miles.

Edith II.	V. Smith	66.0	5:30:00	6:16:54
Iwin	C. P. Irwin	68.58	5:32:00	6:28:00
Gunfire, Jr.	W. J. Brainard	66.4	Did not start	

The judges ex-officio.

The new clubhouse of the Red Bank Motor Boat Club, overlooking the river, was formerly opened on this day and many guests from other clubs were present to enjoy their hospitality. Much of the credit for the rapid progress made by the young club, is due to the untiring energy of Commodore W. H. Powers. The committee in charge of the races consisted of C. P. Irwin, chairman; J. P. Andrews, L. Frick, G. H. Gloistein and P. A. Proal.

The club appears to have a great future and in its one year existence has made great strides forward. The location of the clubhouse could hardly be improved upon, being situated on one of Red Bank's most important streets and yet within about 100 feet of the shore. The possession of nearly one-half acre of land gives the rocking chair fleet ample room for tennis and other out of door amusements, and practically next door Charles P. Irwin's fully equipped boat and engine shop is located, which is well adapted to take care of the wants of the fleet. A substantially built pier has recently been completed from the shore out into deep water, which with the other improvements that the members have effected at a total cost of about $10,000, is a decided benefit to the town of Red Bank.

The membership in the club is fast approaching the one hundred mark with excellent chances of much larger list before the season is over. The fleet, although not especially numerous just at present, contains some very representative craft and several that are apt to be heard from in the speed line before long. Notably among the fast ones is Muirmaid, a new Doyle hydroplane that was only put overboard the afternoon before the regatta.

The officers of the Motor Boat Club are: Commodore, W. H. Powers; vice-commodore, Clark Holbrook; secretary, Charles Croft, and treasurer, G. H. Gloistein.

To Block Island

An Account of Thistle's Record Breaking Run in the New York Athletic Club's Fifth Annual Race.

By Chas. F. Chapman.

The new Viking class introduced by Mr. J. H. Wallace in the Block Island Race promises to solve the problem of professionalism so widely discussed lately. It is hardly just to bar the man from racing who makes his livelihood by following the sea, provided he is genuinely interested in the sport. On the other hand, the amateur is handicapped in competing with him and the idea of the new class is that those boats manned only by amateurs may compete for additional prizes, thus offering an incentive to amateur crews without actually barring the professional.—Editor.

IT does not happen very often that more prizes are offered for a race than there are boats to award them to, but that is what occurred in this year's race to Block Island. There was a fairly large entry list, seven boats having signified their intention of going and paid the requisite entry fee, but only four started and one less finished. Of the three that did finish only one got to the island within the time limit for the Viking prizes.

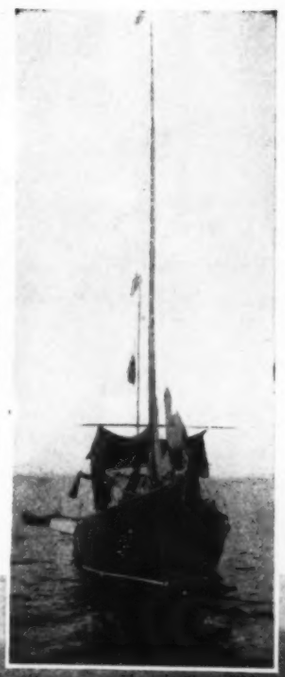
In 1911, eleven boats headed east at the starter's gun at 5 p.m. and by 5:51 the next morning every one of them was safely at anchor within the Great Salt Pond at Block Island. Ten of last year's fleet did not answer the call of 1912 and every one was a loser by it, for things were different this year. Instead of a race very poorly handled by sailboat men, who were largely not in attendance at all, we found this year's committee made up of real live motor boatmen experienced in the handling of races and alive to all the situations. I remember in the first Block Island race in 1908, when Kittrois went up to the committee boat to hand in her certificate of rating, we were told that such an instrument was unnecessary, but after a lengthy argument we convinced them that it was and upon asking to see the certificates of the other competing boats, were shown one that aside from many other specifications included headroom in the cabin and diameter of the flywheel. Kittrois did not win the 1908 race on corrected time, although we thought she had for months after the race was over.

The conditions this year warranted an entry list many times its size. The spacious clubhouse of the New York Athletic Club on Travers Island was thrown open for the use of the crews and the committee was on hand and actually went aboard and inspected each boat to determine whether she was a *bona fide* cruiser. The handicaps were all announced before the start and the prizes were all on exhibition. Aside from the "Day" trophy, which is held by the New York Athletic Club until the same owner wins it twice, the club had offered a permanent first prize, a time prize and second and third prizes if the entry list was large enough. Commodore Wallace offered a prize for a race returning from Block Island with handicaps based on the performances in the race to the island. The Viking prizes were offered to all boats finishing within three hours of the first boat and having only amateurs on board. These prizes consisted of a Sterling fac-simile of the Viking ship recently discovered near Christiana, Norway, and imported from that country. They were offered to encourage long-distance racing among amateurs and a Viking class was also run in connection with the long-distance race from New York to Albany and return, on June 29th when the crews of five boats qualified as Vikings.

The five cruisers that started in this year's Block Island race were: The Thistle, owned by J. H. Wallace, of the N. Y. A. C., 37' x 7.1' on the waterline, powered with a four-cylinder 5½" x 6" Sterling engine; Debut, owned by A. Nachmann, of the Yonkers Corinthian Yacht Club, 30.83' x 7', with a two-cylinder 5¼" x 7¼" Twentieth Century engine; Anna, owned by John Anderson, of the Classon Point Yacht Club, 34.5' x 7.67', with a four-cylinder 5" x 6" Clifton motor, and Empire, owned by J. B. Luckenbach, of the Crescent Athletic Club, with a four-cylinder VanBlerck engine.

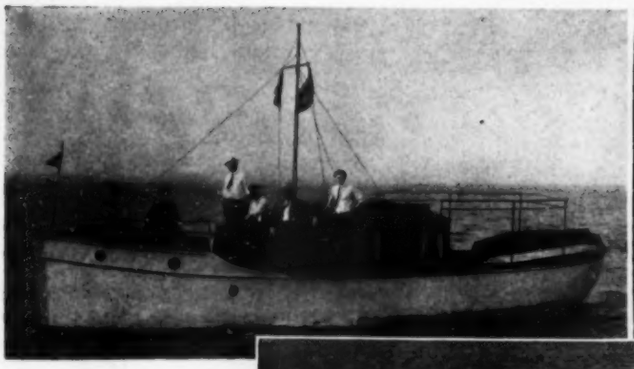
Thistle and Empire made a beautiful race, keeping side by side from the starting line at Huckleberry Island to Old Field Point, a distance of 30 miles. Not over two lengths separated the boats during this whole distance, first one and then the other taking the lead. When Thistle was trimmed by the stern, Empire seemed to gain slightly, but when her crew went forward, she would slowly draw away from Empire. Slightly before 8 o'clock in the evening Empire was a couple of lengths astern of us on our port quarter when we saw her suddenly veer to port and make a complete turn, describing a circle of several hundred yards in diameter. We concluded that something had gone wrong with her steering gear and we watched astern as long as the twilight would permit, expecting to see her after us again, but darkness came before we caught sight of her. We learned later that her rudder had dropped off, forcing her to withdraw from the race. Her crew put back into Huntington steering by shifting the tow line of their dinghy full of water from one quarter to the other.

We were greatly disappointed at the mishap to Empire, as both crews were nerved up to getting every bit of speed possible out of their engines, and one could easily see it was going to be a toss-up as to who would be the first at the goal many miles in the distance and a

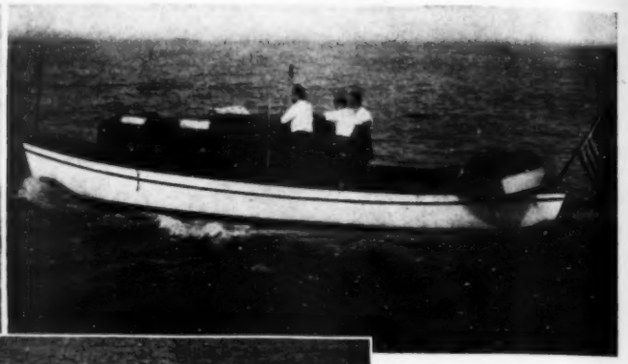


The committee boat at the starting line.

Thistle, of the New York Athletic Club, winner of the first and time prizes.



Anna, owned by J. Anderson, winner of second place.



Debut, owned by A. Nachmann, of the Yonkers Corinthian Yacht Club.

Empire, owned by J. B. Luckenbach, lost her rudder during the race.

The Victor.

race in which navigating adeptness would count for considerable.

After the start at 5 p.m., we held our course east three-quarters north for 17 nautical miles to Eatons Neck Buoy which we passed at 6:51, at 9.2-knot speed. The tide was high at just the starting time so we figured that we would have it with us all the way down the Sound if we kept in shore at start and in the center at the eastern end. The chances were that with Thistle's speed of 9 knots we would reach Plum Gut just after the turn of tide necessitating bucking a four-mile current in this section. As the tide in the Race does not turn for over one hour after that in Plum Gut and the current in the Race near Little Gull Island holds ebb fully one-half hour longer than it does near Race Point, therefore, after passing Eatons Neck Buoy, we laid our course east three-eighths north for Little Gull Island.

At 8:20 Stratford Shoal Light was abeam, our average speed since the start having gone up to 9.32 knots, and when Falkners Island was abeam at 10:30, our average speed was 9.65 knots, which illustrates very nicely the increasing tidal current that was helping us along. Our speed between Stratford Shoal and Falkners Island was 10.1 knots, showing over a one-knot current. Cornfield Lightship, 65 nautical miles from the start, was passed at 11:45.

The night was beautiful and clear without a breath of wind and the Sound was like the proverbial mill-pond, and a race between hydroplanes would have been as feasible as one between cruisers. One thing that interested us greatly was the manner in which the various lights were picked up. One would expect them to appear first as a faint glimmer in the far dis-

(*Continued on page* 64.)

Notable Diesel Engines.

No. 1-the Sebathé, The Motor That has Lowered the Record for Fuel Consumption per Brake Horsepower From .43 lbs. to .392 lbs. per hour.

By J. Rendell Wilson.

IN the Sabathé engine we have a type that is distinct from all other residue oil engines, and, although the pure Diesel class can be said to have a remarkably low fuel consumption, the engine in question is even more economical, as its consumption of heavy oil has been brought down as low as .392 lbs. per b.h.p. per hour against .43 lbs., the lowest yet attained by any other marine Diesel. This has been obtained by the adoption of a system giving combustion at constant volume and at constant pressure, whereas the pure Diesel combusts under constant pressure only. So it will be seen that the Sabathé engine is an improved development of the Diesel. Combustion is, of course, by heat developed by compression alone, no hot-pot, tube, or electrical ignition gear being required. The designers and builders of this novel engine are the Société des Moteurs Sabathé of Usines de la Chaléassière, St. Etienne, France, and the firm have already fitted a number of French naval submarines and yachts. The fuel consumptions given were taken during official tests.

The 500 h.p. model here illustrated, which develops its power at 400 r.p.m., is an excellent example of Sabathé design. The sizes constructed range from a two-cylinder 10 h.p. model, to an eight-cylinder engine of 6,000 h.p., although I understand that the largest engine actually constructed had four cylinders and was of 700 b.h.p., or 175 h.p., per cylinder, which is no mean power, when one considers that the engines of the 10,000-ton ship, Selandia developed only 156 h.p. per cylinder.

The 500 h.p. engine, illustrated, has a fuel consumption per brake-horsepower of 178 grams (one gram = .035 ounces avoirdupois) at the normal running speed of 400 revs. per minute; that is to say, a total consumption of 183 lbs. 9 ozs. per hour. At 350 r.p.m. the engine develops 300 b.h.p. with a fuel consumption of 179 grams per b.h.p. hour, or 106 lbs. 6 ozs. per hour. On dropping the engine speed to 250 r.p.m. the power given is 110 b.h.p., and the fuel consumption increases per b.h.p. hour to 200 grams, but the total hourly consumption at this speed is only 43 lbs. 2½ ozs., due to the great reduction of power. So it will be seen that, although the proportionate consumption at low speeds is higher, the engine is remarkably economical when running slowly.

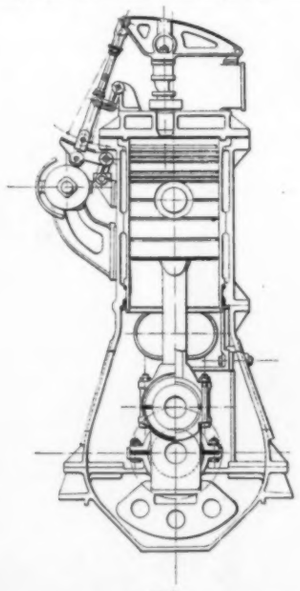


Fig. 3

Fig. 1.—The cylinders are fitted with steel liners and besides the usual piston rings there are several broad white-metal bands.

Taking residue oil at three cents per gallon (in some parts of the United States the price is two cents), the 500 h.p. Sabathé engine costs but 73 cents per hour to run at full speed; while at 250 revs. per min. the cost is only 17 cents per hour's running. This compares extraordinarily with a gasoline engine of the same power, which would have a consumption of not lower than .7 lbs. per b.h.p. hour of fuel costing 12 cents per gallon. Thus, at full speed, she would require 314 lbs. (43¾ gallons) of gasoline, at a cost of $5.16 cents per hour.

These figures show an enormous annual saving in the fuel bill alone, apart from the economy of lubricating oil. If lubricating oil is lavishly used with Diesel engines, various troubles set up. This, however, is another story. Working aboard a ship in American

waters for 12 hours per day, for 300 days in the year at full speed, the Sabathé 500 h.p. engine would cost $2,628, while the 500 h.p. gasoline engine will cost $18,576. Thus an annual saving of $15,948 is obtained on the fuel bill alone.

I do not mean to infer that the Sabathé engine is the only one that will affect great savings of this nature; other Diesel engines will do it, and have done it. For instance, the saving in the fuel bill of the 2,500 h.p. Burmeister & Wain Diesel-engined ship, Selandia, is about $7,500 per annum over a similar coal-burning steamship. Of course, gasoline engines of this power would be more expensive to run than steam machinery. But such figures as those given above will make shipowners and yachtsmen hesitate before placing orders for small steamships or large gasoline-engined yachts.

During a four-hour test of the 40 h.p. engine of an auxiliary yacht 42 b.h.p. was developed at an average speed of 575 r.p.m., the fuel consumption of heavy Russian residue oil being 9,156 grams (about 13¼ gallons), whereas a gasoline engine of this power would require at least 4 gallons per hour, so the economy is apparent. Against this, of course, must be weighed the higher cost of the Diesel type of engine.

Now, let us turn to the working and constructional details of this interesting marine engine. It is directly reversible and operates on the four-stroke cycle principle. Figure 1 shows a section of one of the cylinders, which, it will be noted, are fitted with steel liners. To overcome frictional troubles the pistons have several broad white-metal bands in addition to five cost-iron piston-rings. The cylinders have a bore of 185 mm. by the same stroke. In the head of each cylinder there are three valves, namely, air inlet valve, exhaust valve and fuel injection valve, except the after cylinder, which has also an air starting valve, all of which are operated by rockers from a camshaft on the starboard side. There are two sets of cams, one for the ahead motion and the other for the astern movement, and both sets form a sleeve on the camshaft, the sleeve being moved lengthwise for reversing by means of a hand-wheel; but first the rollers

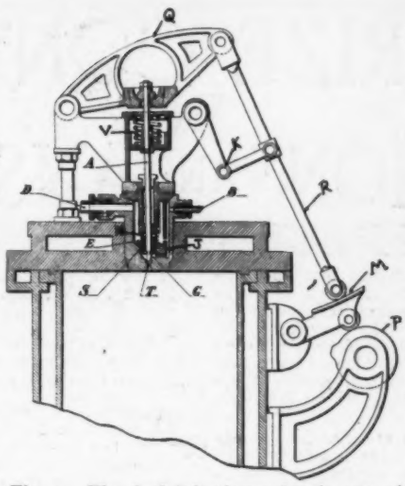


Fig. 2.—The fuel injection valve is one of the ingenious features of the Sebathé engine.

of the valve rockers are lifted from the cams by means of a lay-shaft operated by compressed air. On the right of the illustration (forward end of the engine) can be seen the three-stage compressor which supplies air to storage tanks, for fuel injection, starting, and reversing. The pistons can be removed through the doors in the crankcase.

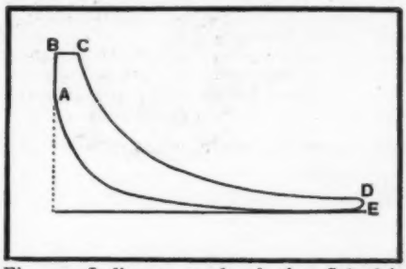


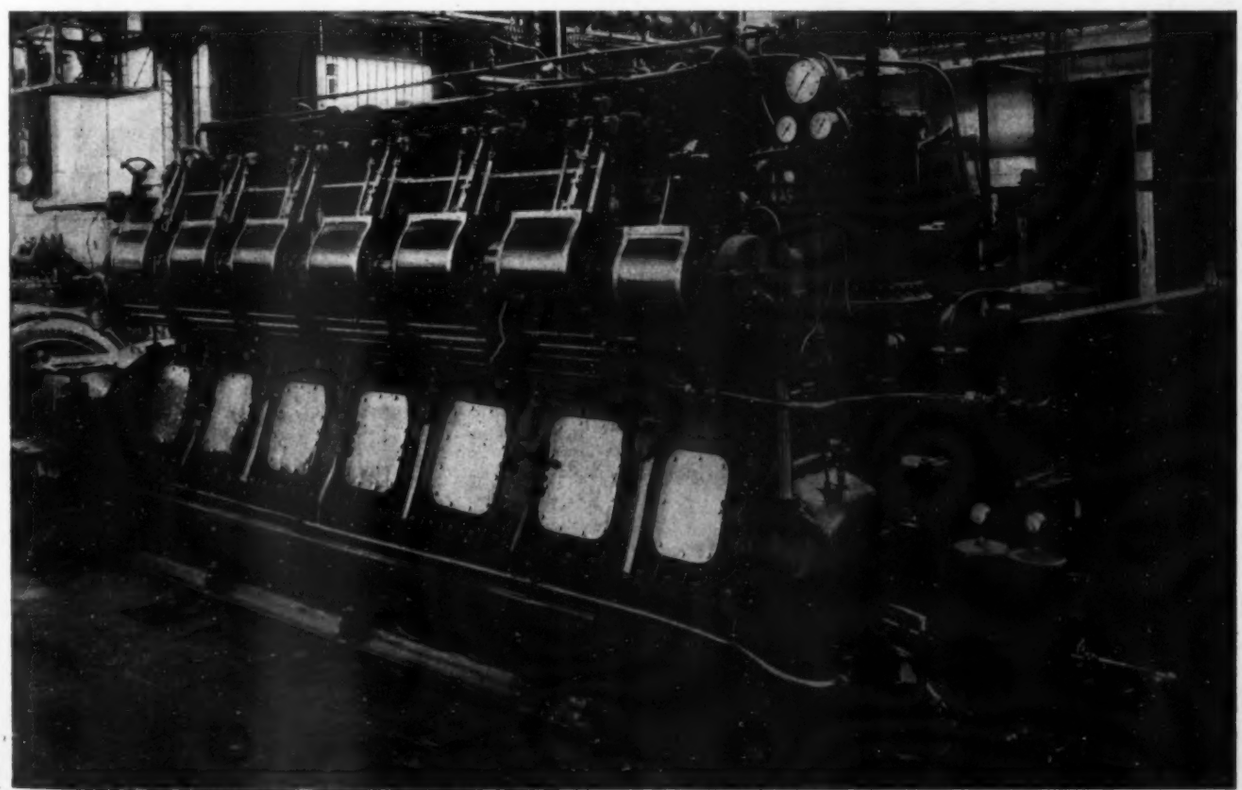
Fig. 3.—Indicator card of the Sebathé Diesel.

Turning to Fig. 2, the general arrangement of the fuel injection valve is shown. This is of unique and ingenious design and deserves special attention. On the first downstroke of the piston air is drawn in and on the upstroke it is compressed to 400 lbs per square inch, and just as the crank turns over the dead center fuel is injected in two stages. How this is done I will endeavor to describe:

Oil is forced from plunger-type fuel pumps to the two chambers G and E through the passages B and J. Just as the piston almost reaches the top of the stroke the fuel valve (A) is lifted by means of the cam (P), the motion being affected by the rocker (Q) and the rod (R), and the fuel in the chamber (G) is injected into the combustion chamber by air at 800 lbs. per sq. inch, the latter entering at D. On the valve-stem (A) are several small projections (T) which, as the valve (A) lifts, raise the valve (S) and thus the fuel in the chamber (E) is also injected, under air pressure, of course, into the cylinder which is already in a state of combustion at constant volume, the stroke continuing at constant pressure. The two separate fuel injections follow very rapidly after each other, the first charge increasing the compression to 580 lbs. The valve (A) is closed by the spring (V), while the valve (S) is shut by the spring (N).

Now, to the smaller lever (K) the governor is attached, also the engine speed control. By moving this lever the rod (R) is caused to slide on the saddle (M) and its position varies the movement of the rocker (Q) and consequently the lift of the valve (A). Thus, at slow speeds, the valve (A) does not lift sufficiently to raise the valve (S), so that only the small quantity of fuel in the chamber (G) is injected. This partially accounts for the economy of the consumption.

The system of injecting the fuel in two separate charges gives combustion first at constant pressure and then at constant volume, the advantage of which is proved by the results obtained. It is interesting to remark that the French government has adopted Sabathé engines for naval craft, and in consequence of being busily engaged on this class of work, the makers have not, up to the present, done very much with regard to pleasure and commercial vessels.



It is claimed that the Sebathé is the most economical, in fuel consumption, of all the Diesel type engines. This is the 500-h.p. model.

THE PRIZE CONTEST IN QUESTIONS AND ANSWERS

IT is doubtful whether any question that has been published since the Prize Contest in Questions and Answers was started has brought in as many excellent answers as the one this month on the floating boathouse. The awarding of the prize has been a most difficult task, as many of the designs were of almost equal merit and, although we have allotted more than the customary space to this particular question, yet we regret that we have been compelled to discard many designs that were worthy of publishing.

THE answers to the second question are especially timely at present, not only because the racing season is at its height but also on account of the present tendency to closely scrutinize the existing handicapping rules. Every effort is being made to formulate satisfactory rating rules, yet without a race course of the proper and correct length every rule must fail. We are hopeful that an improvement on the rating rules will shortly be forthcoming, but there is little excuse for the course being too long or too short after one has read over these answers.

POOR compression in the cylinder is the cause of most of the trouble experienced in starting marine gasoline engines, not to mention the loss in power and efficiency that is always present when the compression is weak. Several excellent formulæ are suggested for improvement and the methods for permanent correction are well worth following.

THE QUESTIONS FOR THE OCTOBER CONTEST ARE THESE:

Give instructions and drawings for the installation of a gasoline tank or tanks for a small cruiser, special attention being given to safety and the manner in which the tank is held in position.

Suggested by A. H. R., Brooklyn, N. Y.

Describe the best method of rebabbitting a worn or burned out bearing.

Suggested by F. T. L., New York City.

Give a method of installing a high-tension magneto and coil in a motor boat, with diagram of their wiring.

Suggested by H. Lloyd Pulford, Armstrong's Point, Winnipeg.

ANSWERS to these questions, addressed to the Editor of MoToR BoatinG, 381 Fourth Ave., New York, must be: (*a*) In our hands on or before August 24, (*b*) not over 500 words long, (*c*) written on one side of the paper only, (*d*) accompanied by the senders' names and addresses. (The name will be withheld and initials or a pseudonym used if this is desired.) Questions for the next contest should reach us on or before the 24th of August.

THE PRIZES ARE:

For each of the best answers to the questions above, *any* article advertised in MoToR BoatinG, of which the advertised price does not exceed $25, or a credit of $25 on *any article* advertised in MoToR BoatinG, which sells for more than that amount.

(*There are three prizes, one for each question, and a contestant need send in an answer to but one, if he does not care to answer all.*)

For each of the questions selected for use in the next contest, *any article* advertised in MoToR BoatinG, of which the advertised price does not exceed $5, or a credit of $5 on *any article* advertised in MoToR BoatinG, which sells for more than that amount.

For all non-prize-winning answers published we will pay space rates.

When You Send in Your Answers, state what you will take if you win a prize.

A Floating Boathouse.

A Number of Excellent Structures for Housing the Motor Boat That Are Available Both for Tide Water and Inland Use.

THE PRIZE CONTEST—Answers to the First Question in the June Issue.

Either Pontoons or Barrels.

Prize won: Marine engine of Shadegg Boat & Engine Co.

"A HOUSE without a foundation cannot stand." This is as true of a boathouse as of its dry land brother. An architect never ties his foundation together with the stories above it, but designs the foundation so as to hold the upper stories in shape; yet a great many boathouses are built on pontoons, with nothing more than the house, of which one end is principally doors, to hold it and the pontoons together. The result is, after a season's use, the doors sag, the pontoons spread and the whole gets badly out of shape. The accompanying drawings show how this trouble may be avoided in a new boathouse and remedied in an old one, if not too bad.

The roof is of the box-car type, which is both cheap and substantial. Just under the eaves at each side a space is left for ventilation, as considerable moisture rises from the water on warm days and, if not taken care of, condenses on the boat. The roof is seven-eighths dressed and matched material and, if given several coats of good paint, will turn water fairly well, but better results will be obtained by covering with a good brand of prepared roofing. The pontoons are made of two-inch material to size shown on the cross-section and six feet longer than the boat to be housed. All seams on sides and bottom should be well caulked and painted. The top planking at the forward end, extends from outside to outside of pontoons in one length. This ties them together at this point at the after end and the two by twelve plank "A" is mortised at each end to fit loosely over two two by six uprights or posts "B." This ties the pontoons together here and furnishes a place to stand when closing and fastening the doors. A half-inch bolt at each end of this plank keeps the mortises from splitting out. The plank is removed each time the boat is taken out or brought back.

The section in the lower right-hand corner shows how pontoons may be built of barrels. Knock out the bungs and turn the barrel so the hole is up for ventilation and to pump out. A coat of copper paint will make the barrels last longer and stop small leaks. It will be necessary to use brass hoops in salt water. Barrel pontoons are not as satisfactory as the boat type, as they are hard to tow from one place to another and in climates where boathouses have to be hauled out in the winter they are hard to handle. The windows shown on the elevation are ten by twelve three-light cellar sash, but the builder may substitute what he wishes. Openings about six inches square are left in the top of each end of the pontoon, so they may be pumped out. As this boathouse can be built to accommodate a boat of any size up to thirty-six feet long, it is impossible to give a bill of material for it, but any lumber merchant will furnish this after knowing the size of your boat. The photograph shows a boathouse two years old with no other tie than the house to hold the pontoons together.

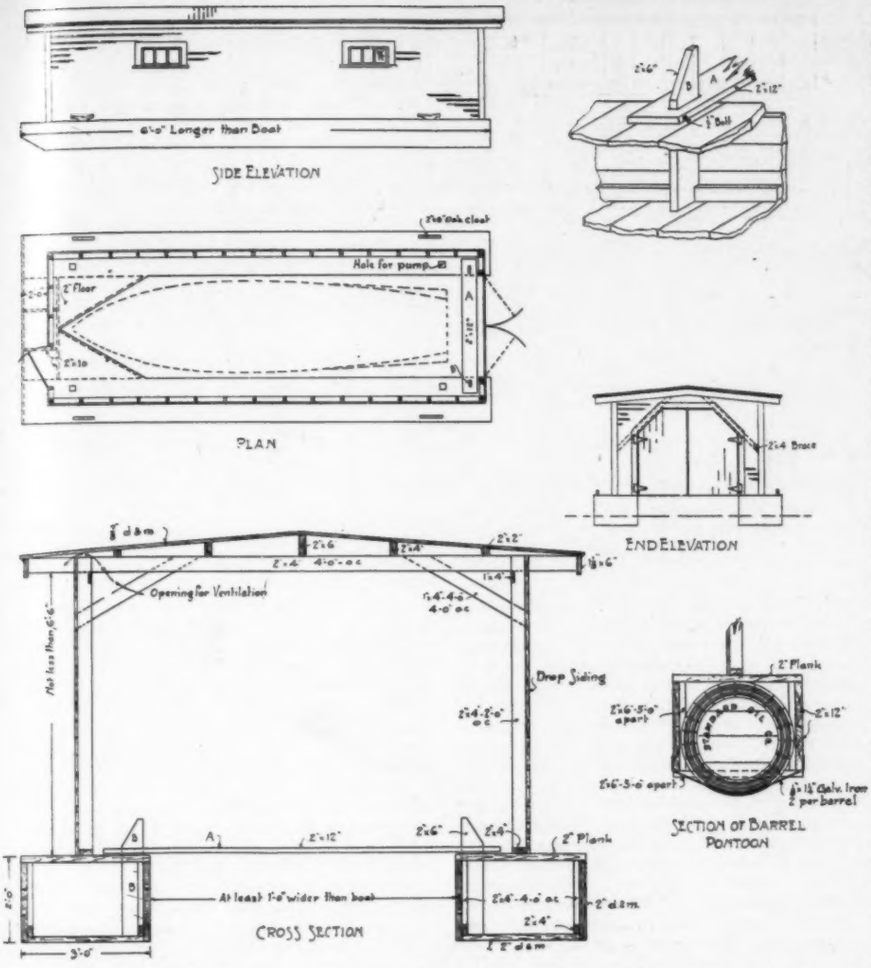
M. A. WRIGHT, So. St. Paul, Minn.

The effect of not tieing house together properly.

A Complete Design.

THE following explanation of the floating boathouse will enable its being built as per the plans illustrated.

The sides and roofing are corrugated galvanized steel sheets because of its fireproof qualities and ease in erection. Use barb-wire nails approximately every 6 inches along each stringer and side laps of one corrugation are sufficient. The doors and shutters are of ¾,



M. A. Wright's design allows a landing space both on the inside and the outside of the house.

⅞ or 1-inch boards properly braced and covered outside with flat galvanized steel sheet. Door hinges are bolted on, preventing the removal from the outside and also the hasp.

One door is held firm by a 3 x 4-inch bar resting in suitable iron supports on the door and each jamb. The other door is locked to it. This bar is adjusted to act as a bumper for the bolt, and should be suitably padded. A permanent one at the other end answers the same purpose. Fenders should be placed along the side also to prevent scratching the boat. The doors are held open when required by a hook and eye at the corners of the house.

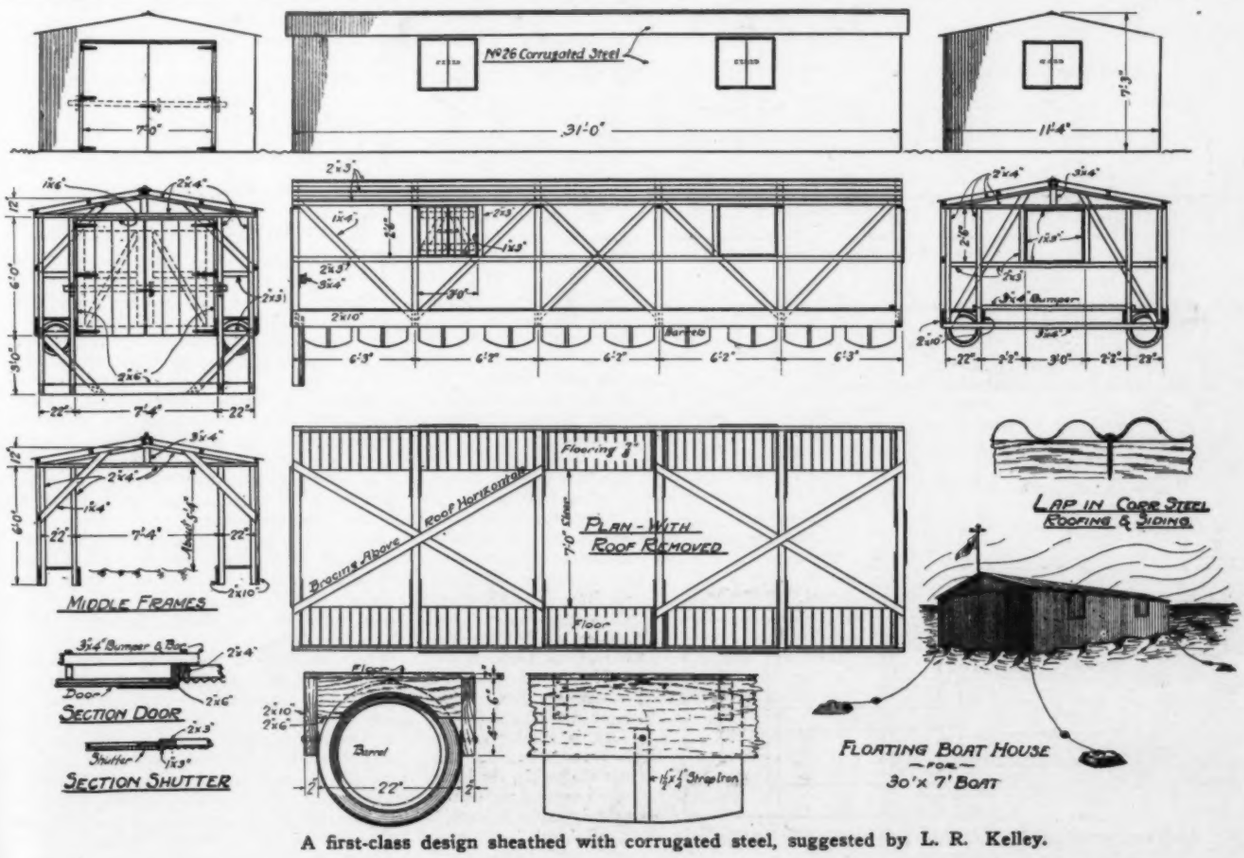
The openings provided with shutters are optional. They need not be glazed and are convenient to let in light and air when working on the boat inside. Barrels are used to float the house and they should be sound and heavy. Fit an iron pipe plug in the bung-hole. It can be easily removed and any leakage pumped out.

They are held between the 2 x 10-inch planks by the 2 x 6-inch cross-pieces, cut out to fit each end and the iron strap around the bottom, as shown. To keep the bung-hole at the top, put small lag screws through the 2 x 6-inch into the top side of the barrel. A flooring is placed over this, forming a convenient storeroom each side of the boat and a walking space for repairing, etc. In fact, it will be found very useful for a number of things.

The barrels and woodwork under the water and awash should be preserved before putting down either with paint, tar or some of the other preservatives, such as carbolineum, etc. Use heavy bolts in this underwater work wherever possible.

Square up the frame and brace it (all bracing is 1 x 4 inches). Put on the doors and shutters and floor, then put the roof and siding on. Wire ropes run from each corner to the mooring anchors which can be concrete blocks, stones, etc. June, 1912, issue of MoToR BoatinG contained a number of methods.

Make it heavy enough and use riding weights. Ropes around the uprights will hold the boat in place. In changing the size of this



A first-class design sheathed with corrugated steel, suggested by L. R. Kelley.

house to adapt it to the other boats be sure to use enough barrels to keep it afloat.

The following material will be required:

75 sheets 1¼-inch corrugated galvanized steel No. 26 gauge, each 6 feet long.

6 sheets No. 28 gauge flat galvanized steel, 28 by 96 inches.

32 feet galvanized ridge cap.

Hinges, hasps, locks, nails, bolts, etc.

20 standard 31½-gallon barrels with pipe plugs.

70 feet 1½ x ¼-inch strap iron.

⅝-inch steel wire rope, galvanized.

Mooring blocks, riding weights, etc.

60 lineal feet 1 x 3.

300 lineal feet 1 x 4.

7 lineal feet 1 x 6.

300 lineal feet 2 x 3.

124 lineal feet 2 x 10 in 31-foot lengths.

300 lineal feet 2 x 4.

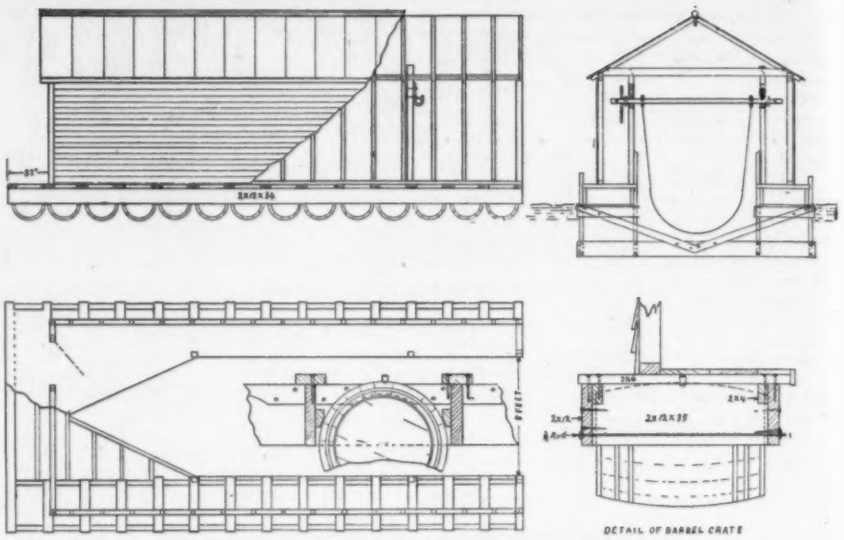
100 lineal feet 2 x 6.

40 lineal feet 3 x 4.

250 square feet flooring, doors, etc.

The above allows for waste, fitting, etc. If exact lengths can be ordered this list will be decreased. The cost will be from $100 to $150 complete, depending on material used.

L. R. KELLEY, Philadelphia, Pa.



A house floated on barrels, designed by Mr. Christie.

A House for Two Boats.

A BOAT of 30 feet to require a boathouse must needs have a good one, and the one I submit has been proven to be good. I have planned this one 36 feet long by 28 feet wide, with 9 feet from floor to plate. The roof is 30°, although the roof design may be made to suit the builder, even a flat balcony roof can be used and with suitable awnings can be made a comfortable retreat to catch all the availing breeze.

Two boat wells, with tackle for raising boats, are planned, each 30 feet 6 inches by 8 feet. The tackle consists of a winding drum, made from an eight-inch log, a foot and 3 inches longer than the width between the uprights which hold it in place. The drum and also the bearing is shown in the drawing. The drum is placed 6 feet from the floor level. The handles are one inch outside measurement and loosely fastened in inch and an eighth holes, fine shot or quick-silver is placed inside the pipe so that as the drum turns, the handles will slide through the hole and clear the trussed roof girders from which the upright bearings are suspended. The upright bearings are fastened on top of the float girders and are also bolted to beams across the top of the roof girders. This distributes the weight as evenly as possible.

The girders are made from 2 x 4 planks, bolted and spiked together. The roof girders are made with 1" x 6" boards for the top and bottom, placed double as shown to make one solid piece. The uprights are 2" x 4" where shown on each side of the diagonal beams, the uprights at each end 2" x 6", as are the diagonals and the butt blocks. The bolts are to be made by a blacksmith and are ¼ inch in diameter.

The float girders are made with top and bottom from 2" x 8"; the end butt blocks are 4" x 8", bolted to the frame; the center blocks are 2" x 8", and are used so that 16-inch lumber may be used for the 2" x 8" diagonals. One-half inch bolts are used. The girder marked "B" in floor plan 2 is built after the other girders are in place.

Cross-timbers under the float girders are 8" x 8" and 28 feet long. These may be built up from 2" x 8" planks and are fastened with bolts to top of float girders. The elevation drawings show the means of holding the barrels in place.

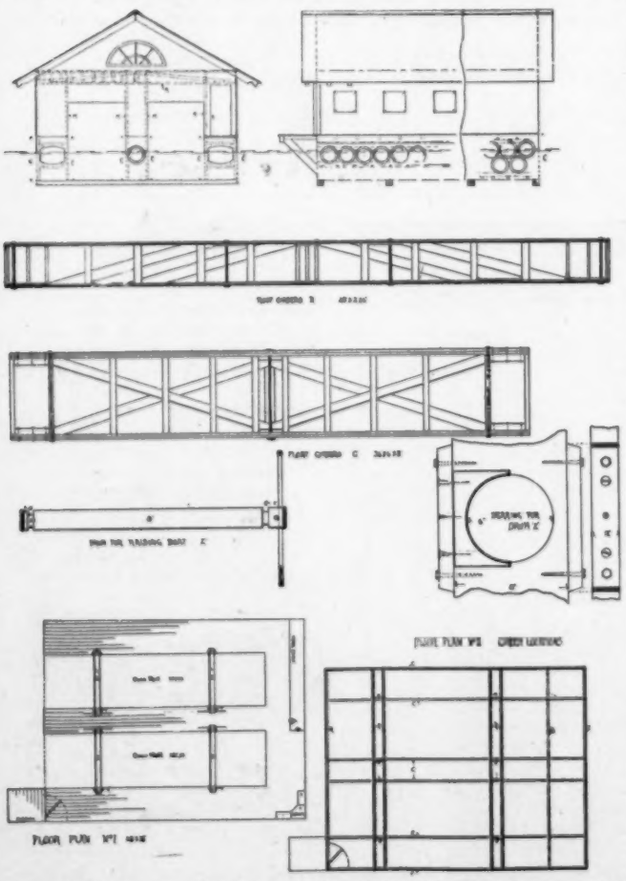
The framing of the boathouse part, aside from the trussed girders, is similar to any house construction. To use the tackle, the band to go around under the boat is made from ¼" x 4" band iron, covered with old cotton fire hose. To the ends of the iron is placed a ring by means of doubling the end of the iron and clamping. For a light boat a single pulley block may be used, or for heavier boats a double tackle block and rope. The handles should be placed so as to be operated from center platform, less danger from flying handles and from tripping over cushions, etc., while raising or lowering the boat will ensue.

A depth of 4 feet of water and a freeboard of 2 feet to the floor is about the medium to expect when the house is empty, with one tow of barrels in place. If the boat sinks the house more than 6 inches, a double row of barrels and some rock ballast should be used. The rear doors are in two sections and slide in grooves, weights counter-balance each section and help in raising the doors.

The house should be anchored from the end opposite the entrances to the wells. This leaves the wells always more or less sheltered.

Linseed oil barrels are the best to use as they are saturated with oil and will last much longer than many others. To remove any barrels, the end by the well entrance should be lifted with removable timbers. The house can be pulled upon shore and the barrels rolled out.

MELVIN D. ANDREWS, Canandaigua, N. Y.



Mr. Andrews provides for housing and raising two boats out of the water.

Recommends Barrels.

THERE are a great many floating boathouses used here, many are on barrels and some on half-round pontoons. After an experience of over six years I believe barrels give the least trouble and more durable, economical and easy to repair. With barrels you have a number of compartments; an accident to one or even several doesn't mean a complete wreck as is often the case with pontoons when one becomes filled. Also, if barrels are held completely under water by ice, as is often the case here, they come up all right while the pontoons get full and sink, as the tops are never tight.

Barrels that have been used for linseed oil, turpentine, varnish, etc., are very good. Give the hoops a coat of tar to protect them from rusting. Barrels can easily be removed or replaced by filling with water; after they are in place, pump out.

The plans show a 32-foot house on 28 barrels. This gives a total lifting capacity of 11,200 pounds. Estimated weight of house is 4,500 pounds, leaving about 6,700 pounds to lift boat out for winter storage, painting, etc. For the roof, galvanized corrugated steel is used and the sides are closed in with ordinary house siding. This is light, durable and neat in appearance. The frame is 2 x 4 studding and rafters spaced 2 feet, as shown in plans.

Crates for the barrels are of 2 x 12 plank

and are 34 feet long. Spaces for barrels should be about 35 x 27 inches. The end of each barrel is held down by the 2 x 4 cleat or saddle shown in plan. This should be hollowed to fit barrel, as shown, and a small cleat can also be fastened at sides of barrels after they are in place.

A sort of brace is shown in the cross-section. This is to prevent the open end where the doors are from spreading. Make it of heavy plank with 2 x 6 uprights as shown, and fastened together with bolts. The depth can be to suit draft of boat.

Material needed will be shown as follows:

32 sheets galvanized steel, 8 feet long.
1,000 feet bevel siding.
650 feet 2 x 4.
450 feet 2 x 12.
100 feet 2 x 6.
200 feet boards for floor.
80 feet matched boards for doors.

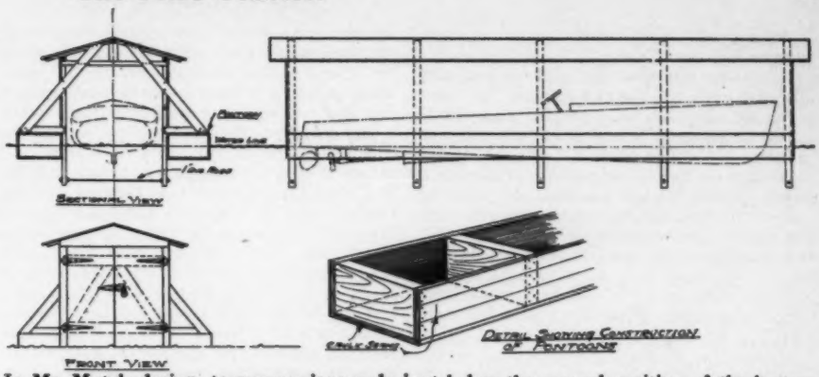
Plans show a house 32 feet long by 13 feet wide; space for boat is 8 feet. This should be made according to beam of boat. The house also can be made wider if more room is desired. As the boathouse is not complete without a convenient hoist, I have shown one which has proven successful here for several years.

It consists of a piece of heavy 2½-inch or 3-inch pipe on which a heavy rope sling is wound. For a very wide boat an extra center bearing can be hung from the beam above.

CHAS. H. CHRISTIE, Saginaw, Mich.

Prevents Boat From Sinking.

AN important feature in the upkeep of a motor boat, especially in maintaining its appearance, is protection from the weather. The ordinary canvas cover is painstaking and laborious to put on each time after a run, and at its best cannot compare with the boathouse. The one shown in the drawing, designed to accommodate a 30-foot boat, has a framework of 3" x 4" white pine or cypress, consisting of five bents constructed as shown in the sectional view. The braces (diagonal pieces) support the house upon its pontoons



In Mr. Motz's design, transverse iron rods just below the normal position of the bottom of the keel prevent the boat from sinking and tie the pontoons together.

besides making the framing very rigid. These braces should be at least ⅞" x 6" wide.

Three 3" x 4" runners traverse the length of the house connecting the bents at the center and the eaves. The roof should have a slope of about 4 inches in 12 inches and can be laid in ⅞-inch white pine or hemlock and canvas-covered, or, if desired, corrugated iron may be used. The siding should be ¾ or ⅞-inch weather or clapboards, running lengthwise or can be covered with corrugated iron, No. 20 gauge galvanized being the proper thickness. If corrugated iron is used, stringers must be provided between the bents.

Two doors are fitted down the front with a substantion hasp and padlock. The pontoons should be designed to support not only the weight of the house but also the weight of the boat, should a leak occur unknown to the owner. To accomplish this it will be seen on the drawing that the framing of the bents has been carried down below the draft of the boat and connected with one-inch diameter iron rods for holding the boat, in case of accidents or otherwise.

The pontoons are built of 1-inch cedar, cypress or white pine planking nailed to ends and cross-pieces, as shown in a separate detail on the drawing. The cross-pieces should be at least 2 inches thick and should preferably be of one piece. The seams should be well caulked and it is good policy to pitch the entire inside of the pontoon. Limbers should be provided in cross-pieces so that the pontoons can be pumped out from one point if necessary.

The size of the pontoons must vary to suit the size of the house and the weight of the boat. The house shown in the sketch is 31 feet long, 7 feet wide and has 5 feet headroom from the waterline, and if built as described, will weigh about 3,200 lbs. Assuming the boat to weigh 5,000 lbs., pontoons should therefore be capable of supporting 8,200 lbs. For For this load, pontoons 2 feet 6 inches wide, 1 foot 6 inches deep and 31 feet long will be the proper size. However, sizes must meet the individual requirements and can be readily worked out, allowing one cubic foot of displacement for each 62 lbs. of weight to carry, and doubling this amount for reserved buoyancy.

Fenders should be provided to keep the boats snugly in place and prevent the marring of the boat's finish and rubbing against the house. While this house has been designed only as a cover the builder can, of course, provide windows and skylights in the sides and roof and shelves or lockers on the inside of the house over the boat for keeping supplies for tools.

W. ELMER MOTZ, Philadelphia, Pa.

Laying Off a Race Course.

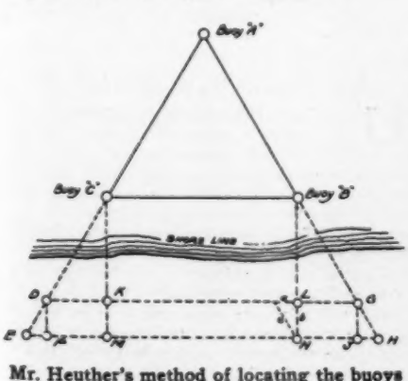
Several Methods that will Enable the Amateur to Accomplish the Task Without the Services of an Engineer.

THE PRIZE CONTEST—Answers to the Second Question in the June Issue.

TO one not conversant with the use of the transit or sextant, the following method will be found simple and practical for all except very long distances. Provide the following:

(1) A fifty-foot or preferably a one hundred-foot steel tape.

(2) Eight long straight wooden pickets about ten feet in length, to each of which a flag about two feet square is fastened.



Mr. Heuther's method of locating the buoys without the use of a transit.

A Method for the Amateur.

Prize won: Speedometer and Compass.

(3) A pair of field glasses for the man setting buoys to observe the signals of the man on shore.

(4) Three buoys.

(5) Three men.

(6) A boat.

(7) A diagram similar to the sketch accompanying.

Suppose the course it is desired to lay off is of a length equal to "3S." Each leg of the triangular course is equal to "S." Begin at the point "K," place a picket here and from this point measure off the distance "S" and place a picket at the point "L." The line between the points K and L being kept straight by lining in smaller intermediate pickets. Turn off a right angle at "L" by making the distances "a" to "b" to "c" in the proportion of 3 to 4 to 5. That is if "b" equals one hundred feet "a" will equal seventy-five and "c" will equal 125 feet. This locates the point "N" where the third picket is placed. The distance "LN" should be less than one hundred feet unless circumstances make it necessary to have it shorter.

Return now to the picket "K" and turn a right angle in the manner previously explained and measure the distance "KM" equal to the distance "LN." This locates the position of the picket "M."

The next point is to locate "E." Turn now a right angle at "M" and make the distance "ME" equal to one-half "S." "H" is located similarly by turning the right angle at "N." These points can also be located by simply

TABLE OF VALUES
TRIANGULAR COURSE

Total length of course	Length of each leg	ME = NH	EF = JH	LG = KD
1 MILE	1760ft.	880ft.		822'-3"
2 MILES	3520'	1760'		1792'-3"
3 "	1 MILE	2640'		2582'-3"
4 "	1 - + 1760ft.	3520'		3462'-3"
5 "	1 - + 3520'	4400'		4342'-3"
6 "	2 miles	1 MILE		5222'-3"
7 "	2 - + 1760ft.	1 - + 880ft.		1 mi. + 822'-3"
8 "	2 - + 3520'	1 - + 1760'		1 mi. + 1792'-3"
9 "	3 miles	1 - + 2640'		1 mi. + 2582'-3"
10 "	3 - + 1760ft.	1 - + 3520'		1 mi. + 3462'-3"

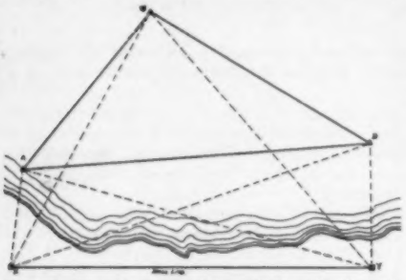
NOTE: EF = JH = KM + 1732
LG = KD = ME - EF = NH - JH

Table of distances for laying off courses of various lengths by Mr. Heuther's method.

lining them in so that they are in the same straight line as "M" and "N."

Next locate the point "D." Line in the point "D" with any two points on the line "KL" and make the distance "KD" shorter than "ME" by the distance "KM" ÷ by 1.732. Place a picket at "D." The point "G" is similarly located in a corresponding position at the other end of "KL." We are now ready to place the buoys. Send out the boat, place a man behind the picket "N" and when the points "L," "N" and the buoy "B" are in line, anchor the buoy.

Next set the buoy "C." Place a man behind the picket at "E." When the pickets "E" and



Mr. Gref's means of determining the length of a triangular course.

"D" and the buoy "C" are in one line and the pickets "M" and "K" and the buoy "C" in another, the point is located. Anchor buoy "C."

To set the buoy "A": Line the pickets "E" and "D" and the buoys "A" and "C" in one straight line and the pickets "H" and "G" and the buoys "A" and "B" in another straight line. When they intersect at the point "A," anchor the buoy. If it be possible have a man in the boat to assist the buoy man by lining himself in with the points on shore with the aid of field glasses. This completes the laying out of the course.

If only a straightaway course is desired, it is necessary only to align the points "M" and "K" with the buoy "C" and the points "N" and "L" with the buoy "B."

Accompanying the drawing is a table of values for all distances required where "3S" is not more than ten miles. The table and explanation are based on the following assumptions: (a) The course is triangular with all legs equal. (b) The distance "KM" =100 feet. To find the distance "KD" when "KM" has other values, divide "KM" by 1.732, subtract this from the values given for "ME" and the result is the required distance "KD."

A. D. Heuther, Toronto, Ont.

Determining the Length of a Given Course.

THERE are two most important factors which enter into the laying off of a race course. The first is to have some quick and easy means by which the length may be determined and the second is to be sure that the results are accurate. Two pieces of apparatus are essential to the laying off of an accurate course, the surveyor's transit and a steel tape.

Any number of points may be laid off, but in this discussion only three are indicated. The turning posts ore buoys should first be set out (indicated in the drawing by the points A, B and C) and they should be anchored so that they cannot move more than two or three feet in any direction. It is advisable that the buoys be located not more than one and one-half miles apart, for if the distance is made any greater than this there may be trouble in reading the angles.

Now select two points (such as X and Y) on the shore so that all of the buoys are visible from each point, and the points are at approximately the same elevation. The distance between these points should be at least one thousand feet. Mark the points with great care and for this purpose it is preferable to make a deep cross-mark on some bed-rock or other permanent object. The distance between the two points should now be determined using the steel tape. Care must be taken in using the tape to always measure with the tape horizontal and in a straight line between the points and also to keep careful count of the number of tape lengths.

Now set the transit up over one of the marks. Set the vernier at zero before sighting and with the upper motion clamped set the line of sight on the other fixed point, using the lower motion. Having this point, unclamp the upper motion and clamp the lower motion. Turn the telescope until it bears on the floating buoy and read the angle through which the telescope has been turned. In this manner take sights on each buoy and read the angles which the line of sight makes with the base line. Then set up over the other permanent mark and repeat the operations.

We now have the following data: The distance XY and the angles AXY, BXY, CXY, AYX, BYX, CYX. We can now find the distance AB, as follows:

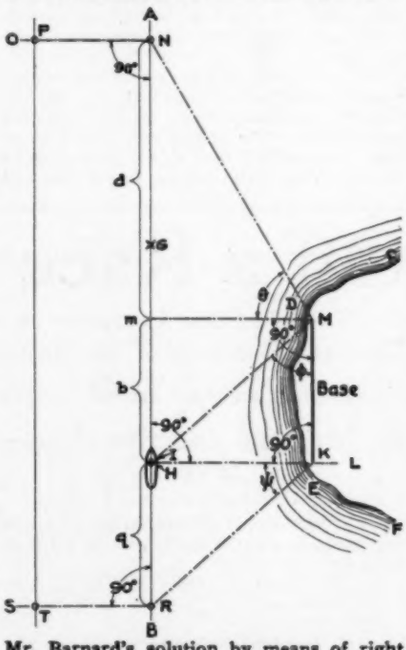
In the triangle AXY we have known the side XY and the angles AXY and AYX. We can find the angle XAY for angle XAY = 180° — sum of the angles AXY and AYX. Now, since in any oblique triangle "the sines of the angles are proportional to the opposite sides," we have that,

$$\frac{AY}{\sin AXY} = \frac{XY}{\sin XAY}$$

$$\text{and therefore } AY = \frac{XY\ (\sin AXY)}{\sin XAY}$$

In a similar manner from the triangle BXY we solve for the side BY.

Now, in the triangle ABY, we have known the sides AY and BY. The angle BYA is equal to the angle BYX minus the angle AYX.



Mr. Barnard's solution by means of right angle triangles.

The desired side of the triangle AB can now be found using the following formulæ:

$$AB = (AY + BY)\ \frac{\cos \tfrac{1}{2}(\text{angle BAY} + \text{angle ABY})}{\cos \tfrac{1}{2}(\text{angle BAY} - \text{angle ABY})}$$

where

$$\tfrac{1}{2}(Bay + ABY) = 90° - \tfrac{1}{2}\ BYA \text{ and}$$

$$\tan \tfrac{1}{2}\ (BAY - ABY) = \left(\frac{BY - AY}{BY + AY}\right) \tan \tfrac{1}{2}\ (BAY + ABY)$$

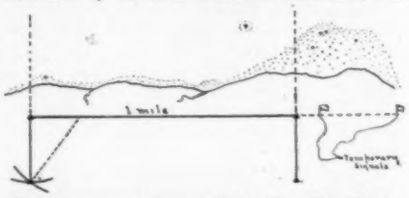
In this manner all of the sides of the course AB, BC and CA may be found. This method will give accurate distances if care is taken in laying off the base line XY and in reading the angles. The distance between the points X and Y should be measured at least three times. The chief source of error will be in the motion of the buoys but this may be reduced to a minimum by taking several readings of each of the angles and taking the mean of these readings for the computations.

It will be found desirable to locate the points X and Y on permanent objects and to carefully measure and record the distance between them, for this base line when once established may be used in succeeding years for laying off other courses.

Wm. H. Gref, New York City.

A Straightaway Course.

THERE are many methods by which an engineer can establish an accurate race course, even though the shore may be indented by or other obstacles intervene, but



Race course suggested by Mr. Bradford.

the amateur must of necessity resort to the simple method of actual measurement of the course.

In order to accomplish such a measurement a comparatively level and straight stretch of shore should be chosen. Near either end, selected as a starting point, establish a pole beacon with a topmark, as one terminal of the course. The next step is to pace off the approximate distance in the desired direction of the other terminal and erect there two temporary signals to serve as a guide in maintaining a straight line measurement.

Having done this proceed to lay off a mile from the starting point toward the temporary range signals, using a 100-foot steel tape and exercising great care in keeping accurate account of the number of 100-foot lengths. The distance, 5,280 feet (or 6,080 feet if a nautical mile is desired) having been determined, erect at that point a permanent beacon similar to that at the starting point.

Now, in order that a boat maneuvering off these beacons may know when she is exactly on the starting line or finish, a rear beacon must be established back of each terminal (front) beacon and at exactly right angles to the measured line joining the two beacons. This may be accomplished by a sextant set at 90° or very easily and simply by measuring a hypothenuse as indicated on the diagram.

The sides of a triangle in the ratio of 3:4:5 or its multiple, is a right triangle, so, by measuring, say 60 feet from the beacon along the base line at the point thus determined take 100 feet on the tape and swing an arc in the approximate position of the rear beacon, then with 80 feet from the beacon swing another arc; the intersection of the arcs establishes the position of the rear beacon exactly at right angles with the measured mile.

Gershom Bradford, 2nd,
W. Washington, D. C.

An Accurate Method.

UNQUALIFIED by any specified degree of precision the word "accurate" is indefinite. Presumably it would preclude stadia or vertical angle methods, and, for too large a number of readers interested in the subject, methods involving the solution of oblique triangles appear impossible of treatment within the allowable space.

This effort, therefore, will be to devise a case and a solution by right angle triangles which will illustrate all necessary steps for as great a variation in local topography as possible. The requirements in the way of instruments are reduced to the minimum.

Let AB represent the line upon which it is

desired to measure the course. Let l equal the length. Let CDEF represent an adjacent shore line bounding land level and clear enough for measuring a base line parallel to the course. Let G represent a stake, or buoy, on AB. Let H represent a boat anchored on AB, opposite one end of the base, and equipped with an instrument, I, for measuring a right angle from GH.

Let an observer in H turn off the right angle GIL, and direct a man ashore to place a peg in IL, as at K. Over this peg set up a transit, and turn off the right angle IKM. Measure KM with a level chain, or tape. Set up at M, and read the angle ϕ. Let mMK be a right angle, so that Hm = base, and mM = IK — b tan ϕ. Then if the whole length of the course is to be laid off from H toward A, the distance d to the buoy N, marking the end must equal l-b, and, as d = mM tan Θ, Θ must be the angle whose tangent equals

$$\frac{d}{Nm} = \frac{d}{b\tan\phi}$$

Turn off the angle KMN = 90° + Θ and place N at the intersection of MN and the range HG.

If, however, N may not be placed sufficiently far from H, toward A, to afford the desired length of course, it is placed as far as is advisable and the angle Θ measured. Then d = b tan ϕ tan Θ and from H toward B there must be laid off the distance q = l — (b + d). This distance q, however, equals b tan ϕ tan ψ, so ψ must be the angle whose tangent equals $\frac{q}{b\tan\phi}$. The transit, therefore, should again be set up at K and the angle MKR = 90° + ψ turned off and the buoy R placed at the intersection of the range GH and the line KR.

If, while placing the buoys N and R, the right angles HNO and HRS be turned off there may be placed the buoys P and T, so that the lines PN and TR form the starting and finishing lines.

Again as soon as the two terminal buoys are located permanently ranges should be established in order that at any time the accuracy of their positions may be checked, or they may be replaced without a re-survey.

If in a tideway, work should all be done on an ebb, or on a flood.

J. H. BARNARD, New York City.

Suggests Measuring off with Wire.

OF course, with a surveyor's transit at hand, a very accurate course may be laid out with very little labor and when there is no transit handy, the following method is very good.

Take a government chart of the district (one on a large scale is best) and using dividers set to scale, lay off a course or several courses of the required length with plenty of water. Having decided on your course, look on the chart for ranges on all your courses. (Chimneys, windmills and water-towers are good ranges).

Now procure some spools of iron wire (copper if cash is plenty). This is the measure you will use. The length of wire required should be as long as the longest leg of the course. If the length required involves miles, the railroad is a good place to measure as the milestones are accurate. Any shorter distances are best made with a steel tape. While you are measuring wire for the longest leg it is a good plan to make the shorter legs by a drop of solder or some such means to save remeasuring.

With your wire cuts fasten the wire to the starting point and proceed on your ranges for the long leg. It is a good plan to fasten a float or two to the wire where the distance to be measured is great. This will keep the line from sagging. At the end of your wire you will put down a buoy for a marker. With this in place swing from the starting point to the other leg of the course, pulling back on the wire till you are the correct distance from the starting point and taking care that you are still on line drop another marker.

You now have two legs and if you have been careful in ranging and measuring, the other leg should check. Fasten the wire to one buoy and try the distance. A few feet will be caused by the pull on the buoy.

This method can be worked under any conditions. If the water is frozen, so much the better. But be careful of your ranges and distances and you will have no trouble.

CHAUNCEY R. MOSHER, Bournedale, Mass.

Remedying Leaky Compression.

Methods Whereby More Power May Be Obtained From an Old Engine.

THE PRIZE CONTEST—Answers to the Third Question in the June Issue.

Several Remedies.

Prize won: Marine hardware from Durkee & Co.

THERE are quite a number of causes which will produce loss of compression in the engine cylinders. The first case is where the cylinders have worn out of round. This necessitates removing the cylinder and having it rebored. A new piston is not always necessary in this case if the reboring has been done before extreme wear has taken place. If a large amount of metal has to be removed then a larger piston must be put in. If only a small amount of metal has to be taken out then it will be found satisfactory to replace the piston rings with a slightly larger size.

If the loss of compression is due to defective piston rings these should be replaced. It is advisable in this case to replace all of the rings as a more uniform fit will then be obtained.

In those engines having removable cylinder heads, there may be a loss of compression due to a defective packing between the head and the cylinder. In this case a new packing or gasket will remove the cause of the trouble.

In the four-cycle engine the usual cause of leaky compression is badly pitted and worn valves. These may be reground into their seats with one of the valve-grinding compounds, taking care to remove all pits and holes from the valves and seats and not to get any of the grinding compound into the engine cylinders.

Small compression leaks around spark plugs, priming cups, etc., may be fixed by coating the threads with plumbers' graphite before screwing into the cylinder heads. This method is preferable to the use of red lead, shellac, etc., because the graphite does not harden and cause the threads to stick and consequently the plugs may be easily withdrawn when desired.

In case the loss of compression is caused by defective piston rings, and it is not convenient to tear down the motor, a temporary repair may be made by using a heavy cylinder oil.

WM. H. GREP, New York City.

Turn the Job Over to a Good Machinist.

THE principal and most common cause of leaky cylinder compression in four-cycle engines, is due to worn piston rings and gas leaking past badly seating inlet and exhaust valves. The insertion of one or more new rings may be necessary to make a good gas-tight fit between piston and cylinder. Again, the leakage may be remedied by grinding in the valves, or by the replacement of a badly worn, pitted, or warped valve. The adjustment of the tappet or plunger rod has a direct bearing upon the compression also. Now and then a broken or weak inlet or exhaust valve spring will cause trouble, and overgrinding of the valves will result in poor compression, and "smother" the motor, by preventing the valves from opening and closing quickly on their seats.

In two-cycle engines bad compression is commonly due to worn piston rings, and also leakage at the gaskets, at base and cylinder heads. The insertion of new rings, or new packing, will improve compression greatly.

Another common cause of bad compression is due to gas blowing past the spark plugs and petcocks. The leaky spot may be found by squirting a little oil around the bushing, and watch for bubbles. To fix, take a little yellow oxide of lead and mix to a paste with glycerine. This must be used at once, and allowed to set for half an hour, when it will harden like iron.

In general, the replacement of worn piston rings will increase compression, but not always cure it, because in some cases the piston itself may be unequally worn, and the new rings will not conform to the elliptical curvature of the oval cylinder bore. The only remedy in this case is to have the cylinder reground true, and fitted with new rings.

Another method is to unbolt the crankcase and have about ⅛ of an inch planed off the lower face.

C. S. TAYLOR, Deep River, Conn.

Look for Sand Holes in Castings.

LEAKY cylinder compression may be caused by the following: Cylinder valves carbonized, piston ring slots in line, piston rings gummed or broken, cam worn, shifted or broken piston head or cylinder wall cracked, piston rings and cylinder walls scored, valve spring or stem broken, valve stem bent or gummed, valve spring weakened, valves leaky, valve, steam and cam follower always in contact, no clearance.

In four-cycle engines there may be some dirt or foreign matter on the seats of exhaust or inlet valves. As the exhaust valves get very hot while running, and if burned oil falls on the seat, it is pounded into the metal, causing both the valve and seat to become pitted, so that they will not fit flush, thus allowing compression to get past. If the valves are pitted in this way they must be taken out and ground in.

A small grain of metal or of emery left on the valve seat from some former grinding will also cause loss of compression. In case the valves need grinding, it is best to have some one do it that understands it thoroughly. To grind the valves, first remove them, then fill the pot in the cylinder with a cloth or a clean piece of cotton waste, to prevent any of the grinding material getting into the cylinder. Then put a small amount of grinding compound on the valve and drop it into place, but do not replace the spring. Then, with a screw-driver, rotate the valve on its seat. Do not turn the valve in one direction, but turn back and forth. It should be raised off its seats every three or four turns to avoid cutting rings in the valve itself and the seat. When the valve shows a good, clean, bright, smooth surface all around, it is then in good condition. The seat must be bright and smooth also. Before replacing the valve be sure that all grinding compound is removed from both seat and valve. If any of the grinding compound is left and gets to the

piston, it is very likely to cut it as well as the walls of the cylinder.

A crack in the head of the piston or a flaw or sand hole in the casting is often the cause. Chloride of lime and iron fillings are good for filling a hole in the casting or piston head. Mix the lime and fillings so as to form a paste. I think the proportion is lime 10 to 3 of fillings. Another is blue vitriol, sal-ammoniac and solder. The blue vitriol will clean the hole and the sal-ammoniac will help to hold the solder in place.

Broken pistons are often the clue to the use of too little oil. A clicking, squeaking noise in the cylinder is usually a sign of worn or loose piston rings. To locate this, crank the engine slowly and listen for the noise. A puffing or hissing sound indicates that compression is escaping into the air.

Compression is sometimes at the priming cocks and spark plugs.

Percy Freeman, Halifax, N. S.

Recommends Graphite.

THE following records the manner in which compression was temporarily restored in an old type 2-cylinder, 2-cycle make-and-break motor, used as an auxiliary in a sloop. The motor has been gradually losing compression until it could be started only with the greatest difficulty. Owing to conditions it was impossible to repair the motor or to wait for it to be shipped to and fro.

The plugs were removed and about a gill of cylinder oil placed in each cylinder, and the plugs restored. The motor was turned over by hand several times to thoroughly spread the oil. About two teaspoonfuls of flake graphite were purchased and equal amounts placed on two pieces of fine screen. These were supported close to the air inlets of the two generator valves. The motor was started and, after about four hundred revolutions, the graphite was entirely sucked into the motor. The results were remarkably satisfactory, lasting nearly a month. The engine was disposed of at this time, but an inspection showed a soft mass around the lower of three rings. The upper, however, was quite caked and almost immovable. The scorings in the cylinder walls were well filled, as were those in the rings.

I would unhesitatingly recommend the above plan for emergency use, but suggest restoration of damaged or worn parts as the only real cure for this trouble.

Dr. L. H. Prince, Philadelphia, Pa.

Compression Improves After Engine Warms Up.

POOR compression may be due to a number of causes. On a four-stroke motor there are several places entirely outside of piston, rings or cylinder to look for trouble. The valves may need regrinding or valve or seat may be cracked, look for leaks by the plug or past the electrodes of a make and break sparker.

Another occasional cause of poor compression on four-stroke motors is improper valve timing, or again the springs of the valves may be too weak to make the valves seat properly.

On two-stroke motors the only things outside of cylinder, piston or rings to leak are spark plug or electrodes or pining cock, or possibly a leaky gasket. While not likely these days it does no harm to examine the compression space it may be too large. This space should constitute roughly from 25 to 30 per cent. of the entire cylinder volume. If the space is made smaller than this, it may cause premature ignition.

If none of the above remedies result in bettering the compression, it must be "blowing by" the piston. This may be caused by the stuckings, cylinder out of round or scored piston too small or work oval, rings broken or with their cut ends all in line, allowing the compression to leak by.

If the rings are stuck, a liberal dose of kerosene when the engine is worked in by turning the engine over by hand, may help. The best remedy is to take the engine down, remove the rings, scrape out the carbon from the grooves and replace, and afterward to use better or less oil as may have caused the trouble. If the cylinder is out of round, or scored, there is no permanent remedy but grinding or reaming and this usually involves new piston and rings to get a good job. If the piston is too small or worn oval, the remedy is a new piston. With a broken ring or rings the remedy is obvious.

If the cuts in the rings get in line, the compression will blow by. The remedy here is to "stagger" the cuts and pin the rings stationary in the grooves. The fit on the piston depends somewhat on the size and type of motor, but it should be roughly about three thousandths at the bottom and from five to seven thousandths at the top, smaller than the cylinder bore.

Sometimes a new set of rings will help. If the compression is "blowing by" it will be denoted by black spaces on the rings. They should be uniformly bright and shiny.

Sometimes a motor with poor compression runs first-rate once started but is hard to start. I have found that priming these obstinate ones with equal parts of cylinder oil and gasoline, works like a charm.

Dr. Chas. J. Herbert, Dorchester, Mass.

Make New Piston Rings.

BEFORE applying any remedy for leaking compression, it is necessary to make a thorough examination and ascertain the exact condition of cylinder, piston and rings. Frequently a new set of rings is all that will be required as very often the rings go wrong before there is much wear on cylinder or piston.

After you have the rings out of the grooves, you can then try the piston in the cylinder, and if it is a good fit, all you will need is new rings. If not you may also need a new piston as well; but before making a new piston find out in what condition the cylinder bore is. This can be done by using a pair of calipers if you are accustomed to their use. Try the cylinder at different places to see if it is round and also the same diameter at different points in the length.

If the cylinder bore is found to be good but the piston too loose, a new piston and rings will be required, but if the cylinder is worn or out of true, that also will have to be rebored or ground. So it will be seen that the remedy to be applied would be according to the exact needs and not the same in all cases.

If the engine is a manufactured one, well made rings can often be obtained from the builder at small expense. If this cannot be done they can be made in any shop where such work is done. But good rings are a very particular job and should be carefully made. If possible, have the casting made where they are accustomed to gas engine work, so as to get the right kind of iron.

Then turn and bore the casting so one side will be nearly double the thickness of the other, making the ring eccentric, and have the diameter about 5/32 large for a 4-inch to 4½-inch ring. Then cut the ring on the thin side and make lap, closing it in so the ring will still be 1/32 inch large when the joint is made.

Next clamp the ring in a mandrel and return or grind to size. The lower edge of ring and also the ring groove should be made as true as possible, as it is this lower edge that does the work as well as the outside. There are many different ideas about the way a piston should be fitted.

For a bored and turned job make the piston as large as you can get in without driving. This will be found to give good results if the part above the upper ring is turned about 1/64 inch smaller. This is important as this part gets very hot, and will expand causing the piston to stick.

Many factories where much work is done now have special grinders for the cylinder, piston and rings. In this way very accurate parts are made but they don't always stay that way. Especially the rings.

A very satisfactory job can be done on a lathe without any grinding, if care is taken.

C. H. C, Saginaw, Mich.

Dolph II, a 72-footer built by the Matthews Boat Company for Mr. W. G. Stuber, of Rochester. She is powered with a six-cylinder Standard motor and is equipped with a Fay & Bowen electric lighting plant.

NEW MOTOR BOAT DESIGNS

A Cruiser for the South.

Designed Particularly for Southern Use, This Cruiser Presents Many Important Details for the Consideration of the Yachtsman Who Isn't Quite Sure What He Wants.

THE standard type of cruiser modified for use in Southern waters has long been popular for such purposes, but Morris M. Whitaker, of Nyack, N. Y., who has designed a number of vessels described in these columns, has embodied some new ideas in one of his latest models which is building for a Florida owner. This craft, which is 45 feet 6 inches over all, was originally intended for a 55-foot vessel, but it was found that sufficient room could be furnished in the smaller boat by ingenious arrangement, and a boat of this size will prove more practical for the waters upon which she is to be used.

The vessel represents the raised-deck cruiser in type, with a bridge deck over the motor and the owner's quarters under the after house. The design has been modified to suit the extreme heat of southern waters without detracting from her speed or seaworthiness. Her owner has had three boats previously, and profiting from his experience, he has suggested a number of novelties in arrangement which have worked out very satisfactorily.

As may be noticed from the profile upon this page, the windows in the stateroom, main saloon, toilet and galley are of the type ordinarily used in houses, and there are no port lights used except in the engine room and in the forward quarters for the crew. Each window has a double sash which raises and lowers, and is watertight, at the same time being properly screened and arranged to furnish excellent ventilation.

The decks are all arranged with a low crown, and the bridge is large enough to sleep four people in cots. The top of the house is large enough to sleep the whole crew, and there is a deck box on top of this for life-preservers. Since in Florida the guests will live on deck most of the time, a sufficient amount of stability has been given to enable twenty people to be carried on the top of the house.

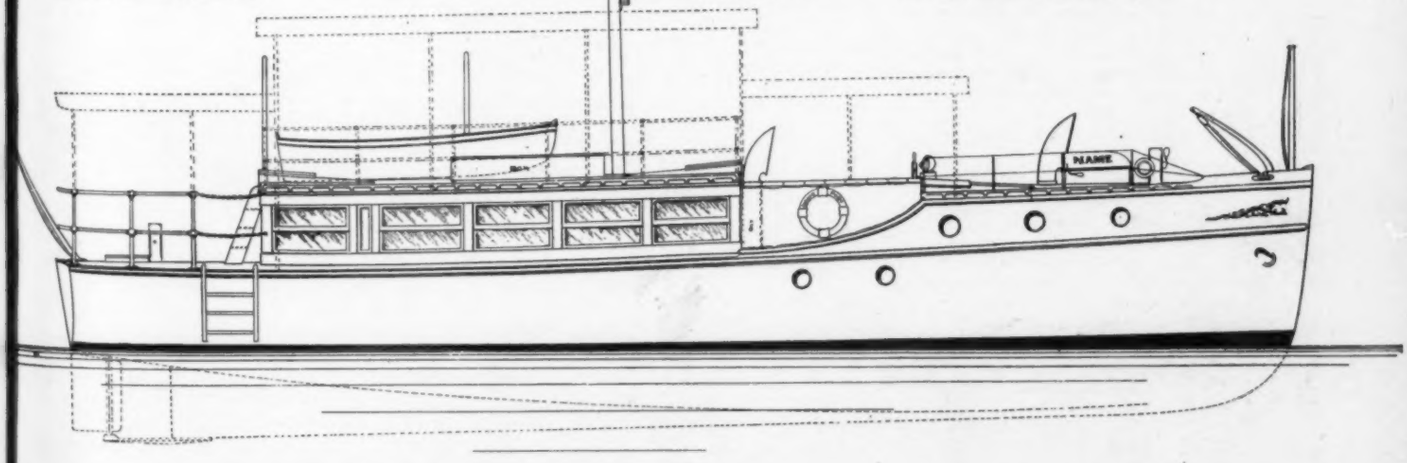
Below decks a noticeable feature is the use of hanging lockers at the head and foot of each berth, and the comfortable arrangement of the living quarters, with the motor and crew forward, a stateroom amidships, and the main saloon with toilet and galley aft. The engine room is particularly well ventilated, and is provided with ventilators which extend under the floor from the after end of the bridge. Additional ventilation in the bilge is provided for by the fact that the air pump for the motor is piped below the floor.

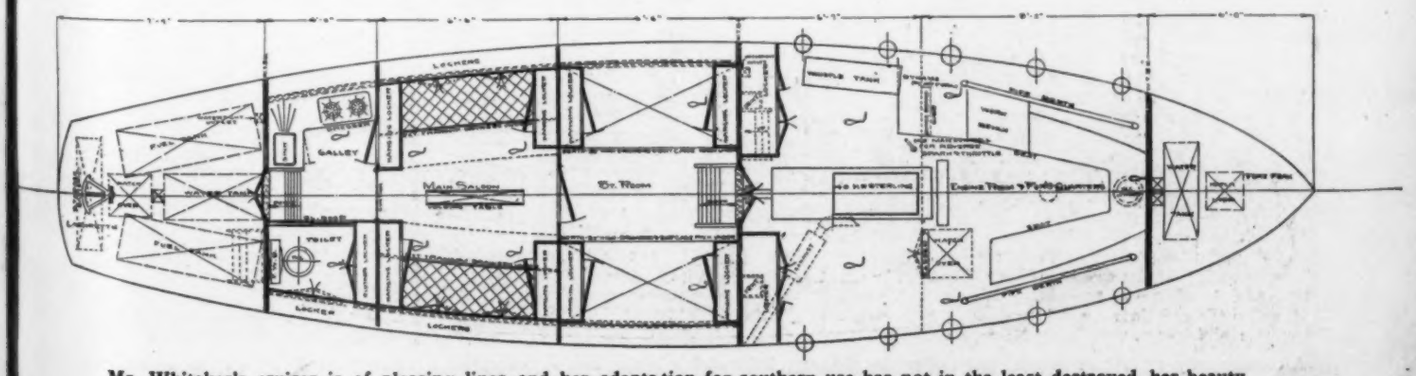
The motor is a 40-h.p., heavy-duty Sterling, which will give a maximum speed to the vessel of 12 m.p.h. Watertight bulkheads are provided both forward of the tanks and aft of the motor, and, as the piping of the gasoline is well protected, there is slight chance of accident from this quarter.

The construction throughout is heavy and strong, with plenty of fore and aft stringers, the framing being of oak, the stringers of yellow pine, and the planking of cypress. The keel, garboard and next plank are coppered.

The decks are provided with canvas side curtains all around, so they can be made weatherproof, and copper screens are fitted to all openings to the interior. A full electric light outfit is also furnished, including the running light, and particular attention has been paid to the fresh water supply, as this is sometimes very difficult to obtain.

This cruiser represents a very satisfactory type, as it has been designed in detail through personal conferences with the owner and a consideration of the needs of a craft for southern service, resulting in an efficient model for the south, although at the same time the seaworthy qualities of the northern construction have not been lost. The location of the galley is a particularly noticeable feature, as the owner and guests use the bridge and the top of the house, while the cook has the after deck entirely to himself. The draft of the vessel is just under three feet.





Mr. Whitaker's cruiser is of pleasing lines and her adaptation for southern use has not in the least destroyed her beauty.

A 27-Foot Raised Deck Cruiser.

A Small Cruiser with Unusual Deadrise, Designed Particularly with a View to Seaworthiness.

THE accompanying plans are those of a 27-foot raised deck cruiser of the plumb stem and Normand stern type, designed by the firm of Swasey, Raymond & Page, Inc., of Boston, for Frederic H. Fay, of the same city, and which was built by Loring, at East Braintree.

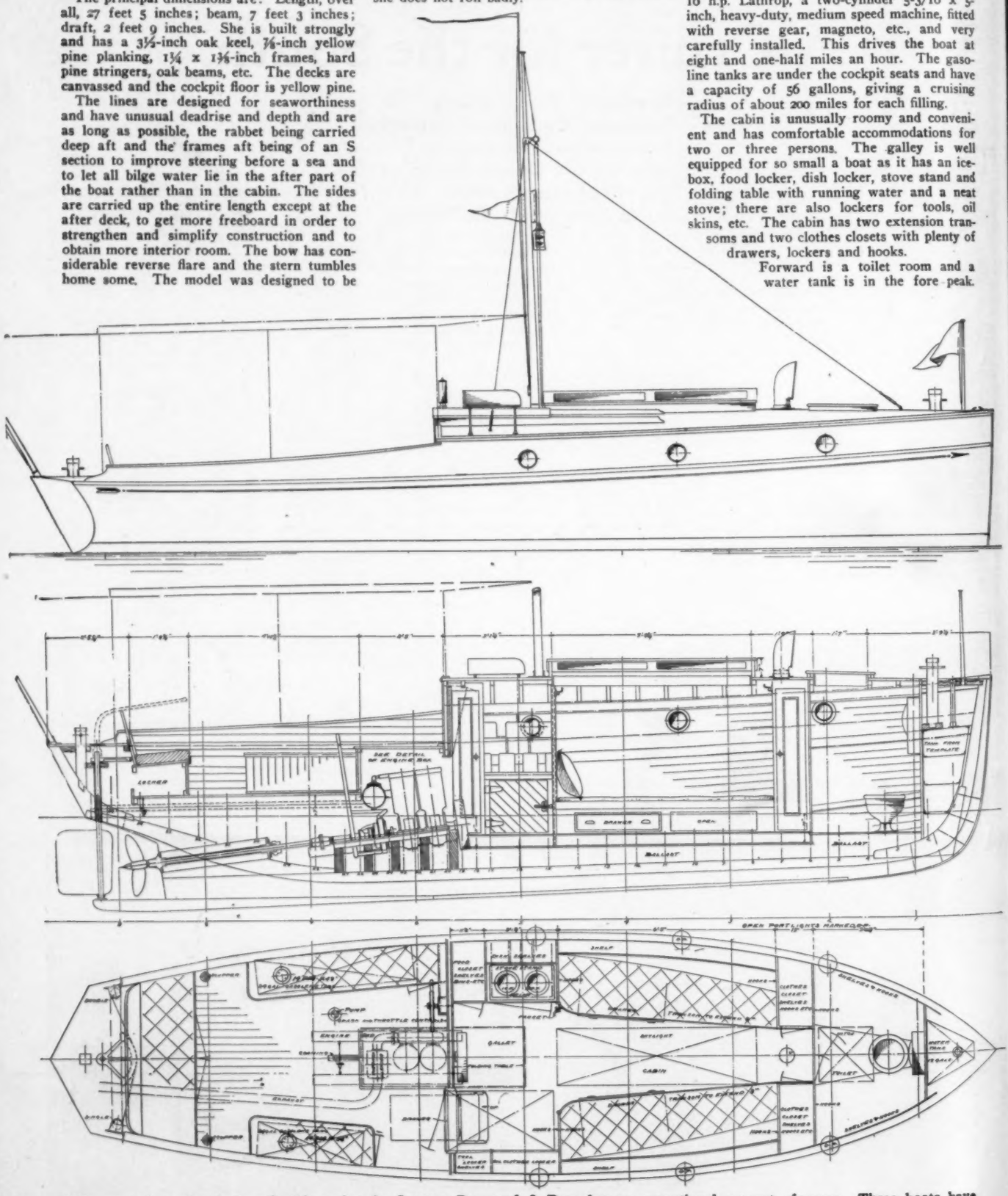
The principal dimensions are: Length, over all, 27 feet 5 inches; beam, 7 feet 3 inches; draft, 2 feet 9 inches. She is built strongly and has a 3½-inch oak keel, ⅞-inch yellow pine planking, 1¼ x 1⅜-inch frames, hard pine stringers, oak beams, etc. The decks are canvassed and the cockpit floor is yellow pine.

The lines are designed for seaworthiness and have unusual deadrise and depth and are as long as possible, the rabbet being carried deep aft and the frames aft being of an S section to improve steering before a sea and to let all bilge water lie in the after part of the boat rather than in the cabin. The sides are carried up the entire length except at the after deck, to get more freeboard in order to strengthen and simplify construction and to obtain more interior room. The bow has considerable reverse flare and the stern tumbles home some. The model was designed to be an excellent sea boat, and as she is quite heavily ballasted and provided with bilge keels she does not roll badly.

The cockpit, which is watertight and self-bailing, is 9 feet long and has seating accommodations for eight persons comfortably. The engine is under a box at the forward end of the cockpit with the flywheel just inside the cabin so as to crank easily. The controls are led to the steering wheel. The engine is a 10 h.p. Lathrop, a two-cylinder 5-3/16 x 5-inch, heavy-duty, medium speed machine, fitted with reverse gear, magneto, etc., and very carefully installed. This drives the boat at eight and one-half miles an hour. The gasoline tanks are under the cockpit seats and have a capacity of 56 gallons, giving a cruising radius of about 200 miles for each filling.

The cabin is unusually roomy and convenient and has comfortable accommodations for two or three persons. The galley is well equipped for so small a boat as it has an ice-box, food locker, dish locker, stove stand and folding table with running water and a neat stove; there are also lockers for tools, oil skins, etc. The cabin has two extension transoms and two clothes closets with plenty of drawers, lockers and hooks.

Forward is a toilet room and a water tank is in the fore peak.



Although only 27 feet in length, this cruiser by Swasey, Raymond & Page has an exceptional amount of room. Three boats have been built from this design.

Care has been taken to give the cabin plenty of light and ventilation and good headroom is obtained by a large skylight. Curtains are provided on the awning and the forward part of the awning will have transparent panels similar to a windshield to keep out spray when running. The lines are clean and her appearance good and it would seem that she would stand all the rough water a boat of this size could be expected to encounter in ordinary use.

The vessel carries a signal mast amidships and for a 27-foot craft of this type she has unusually pleasing lines. The fact that the cabin and toilet arrangements are placed in the forward part, with the galley and motor farther aft makes the layout very convenient and eliminates the objectionable features so often found when the passengers are obliged to pass through the engine room to reach the below-deck quarters.

In addition to the ventilation provided by the skylight and the ports, a cowl ventilator allows fresh air to enter the cabin and this also assists in ventilating the galley. The toilet room forward has a single port-hole upon either side and a hatch above in addition, so that plenty of fresh air can always circulate through the vessel.

The stern is of the regular V-transom type which is so often used in boats of the runabout class and which has proved so desirable owing to its tendency to overcome the natural inclination of a boat to settle at the stern when under way.

Three boats have been built from this design and with all her comforts and conveniences it would be almost impossible to get more into the same length and have a well proportioned boat. She seems to be an ideal small, inexpensive and attractive cruiser for a man and his wife to spend their vacation aboard or to live on the entire summer. She can be built for $1,200 or $1,500, complete, varying with the locality, engine and outfit and the nature of the material used.

A 35-Foot Raised Deck Cruiser.

A Boat for Southern Use Which is Well Arranged to Insure Excellent Ventilation and Ease of Handling.

THE drawings of the 35-foot cruiser which are shown below present an unusually attractive plan for a boat of this character to be used in tropical waters. She has an 8-foot beam and has been designed and built by the Atlantic Company, of Amesbury, Mass., for Mr. Oscar Crabb, of Havana, Cuba.

In type the boat is a raised deck cruiser of the conventional compromise stern, the raised deck forward being continued in a cabin house with good-sized windows and the cabin itself having ample ventilation through a skylight of unusually ample proportions.

The first thing encountered forward is a large general locker of ample size and readily accessible through a convenient plate in the deck. Immediately aft of the bulkhead, separating this from the balance of the boat, is a locker with shelves on each side and doors large enough to permit one to step inside. This locker is lighted on each side by a 7-inch port light.

The cabin proper, containing two transom berths with extensions, is immediately aft of the locker and this is upholstered handsomely in a dark green leather substitute and finished in white enamel. On the starboard side is a large closet provided with ample hooks for hanging clothing and on the port the toilet accommodations, both the closet and toilet being well lighted and ventilated by the large window.

Gasoline is carried in the tank on the bulkhead and as the boat will be used at Havana, where gasoline is imported in sealed packages, the owner plans that if any additional quantity is necessary it will be carried in the original sealed cans in the cockpit.

The cockpit arrangement provides two extension berths as well as a cross-seat amply large for sleeping purposes. These are handsomely upholstered with green leather substitute and the cushions are filled with a buoyant fiber that makes them practically life preservers in case of an emergency.

As will be seen by the drawings, the motor is covered by a removable cabinet and this contains lockers for tools; at the same time every part of the engine is instantly accessible, the handle for the reverse gear being carried to within reach of the steersman at the wheel on the port side.

A water tank of over 90 gallons' capacity is carried under the stern deck and this is piped through a block tin coil in the ice-chest under the after seat to a faucet which may be reached through the trap in the after part of the cockpit floor. An extension of this trap opens into a liberal sized lazaret in which the reserve anchor, line and other dunnage of that character may be carried.

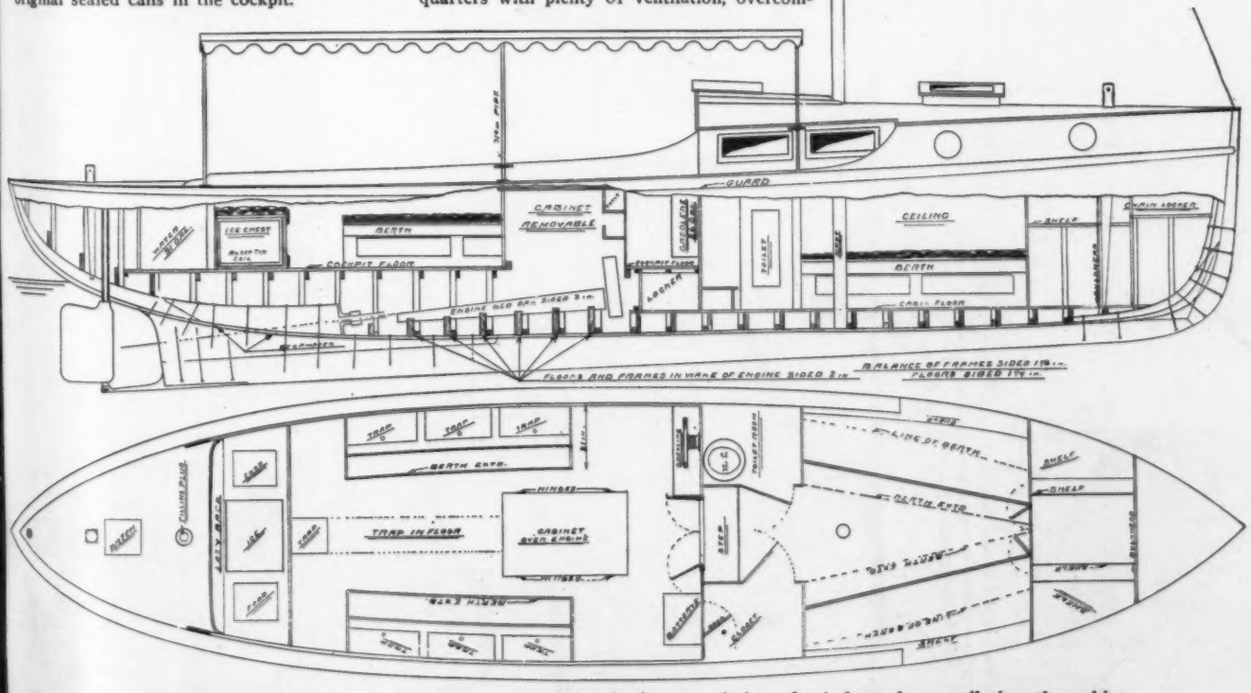
The boat is equipped with an awning over the entire cockpit which will be provided with curtains completely enclosing the cockpit when it is desired to use it for sleeping purposes. This arrangement, together with the ample ventilation of the cabin, provides comfortable quarters with plenty of ventilation, overcoming the usual objection to a boat of this type for use in tropical waters.

The boat carries auxiliary sail in what is known as the "sharpie" rig, very popular on Chesapeake Bay and readily handled and furled, better accommodating itself to this type of boat than an ordinary sloop or cat rig.

The hull is sheathed with copper to four inches above the water line; all fittings are of Parsons manganese bronze, and the design and accommodations are suggestive of a very carefully though out plan to make a boat of this kind adaptable for cruising in tropical waters.

Although this craft has a greater amount of cockpit space than is usual in a 35-footer, the cabin does not seem to be shortened on this account and there is plenty of room for a comfortable party. The stern is of the canoe type, but with the living quarters and most of the weight forward, and with her generous length the craft will present a pleasing appearance when under way.

The ingenious arrangement of the cabin, providing light and ventilation from Pullman windows as well as from port-holes is an excellent feature and adds to the appearance of the craft. The signal mast is placed well forward and is stepped through into the keel at the rear section of the cabin. This gives a very solid construction and the mast is so located that it in no way interferes with the occupants of the cabin. This may be used for carrying an emergency sail rig, as the mast is a stout one, but for ordinary use it will merely supply means for flying signal flags.



Another craft for use in tropical waters. Note the large cockpit and windows for ventilating the cabin.

PORT ELEVATION

A 90-Foot Triple Screw Motor Yacht for Florida.

One of the Latest Designs From the Boards of Whittelsey and Whittelsey. Designed for the Owner of Gladiola, This Craft is an Improvement Even Over Her Arrangement.

WHITTELSEY & WHITTELSEY, 11 Broadway, New York City, have just completed the designs shown below and upon the preceding page, of a 90-foot steel motor yacht, for Mr. O. S. Johnson, of Scranton, Pa. This craft is by the designers of the 67-footer, Gladiola, which was built for Mr. Johnson last year.

The dimensions of this new vessel are 90 feet over all, with a 17-foot beam and a draft of 4 feet 6 inches. These dimensions are sufficiently large to accommodate a good sized party, and since the arrangement both above and below decks is unusually well planned, she should prove a comfortable yacht.

The specifications call for a steel hull and mahogany deck houses, with all interior fittings, both in the deck houses and below decks, to be of white mahogany. The extreme forepeak is, as usual, occupied by anchor chains and accessories, and just aft of this is a crew's toilet with chain lockers upon either side. The portion of the vessel forward of the deck house is occupied by the forecastle, and contains transoms and pipe berths for the crew. Aft of this and separated by a passageway is an engineer's stateroom upon the port side, and an ice box with lockers upon the starboard side.

The galley occupies the full width of the vessel just forward of the motor room, and is completely equipped. A companionway leads from the galley to the dining saloon in the deck house just aft.

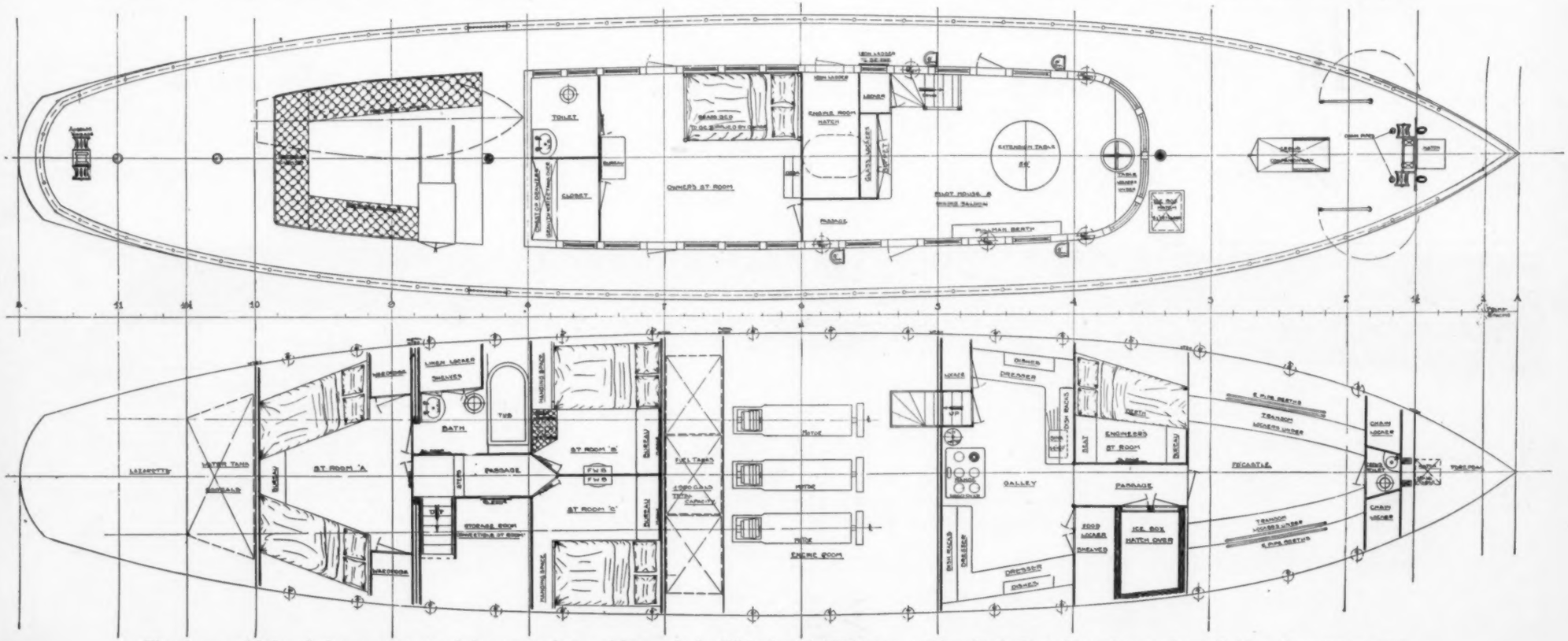
The motor room is provided with three 60-90 h.p. Sterling engines, the fuel tanks being located at the after end of this compartment, and giving a total capacity of 1,900 gallons. This room also includes an electric lighting plant.

The after part of the vessel is divided into four staterooms, equipped with bureaus and hanging space for clothes. Upon the port side, to which communication is also given through a passageway, is a bath, and opposite the bathroom is a storage room, which can be converted into a stateroom if desired. The after stateroom extends the full width of the vessel, and is provided with two double beds. Aft of this is a 600-gallon water tank.

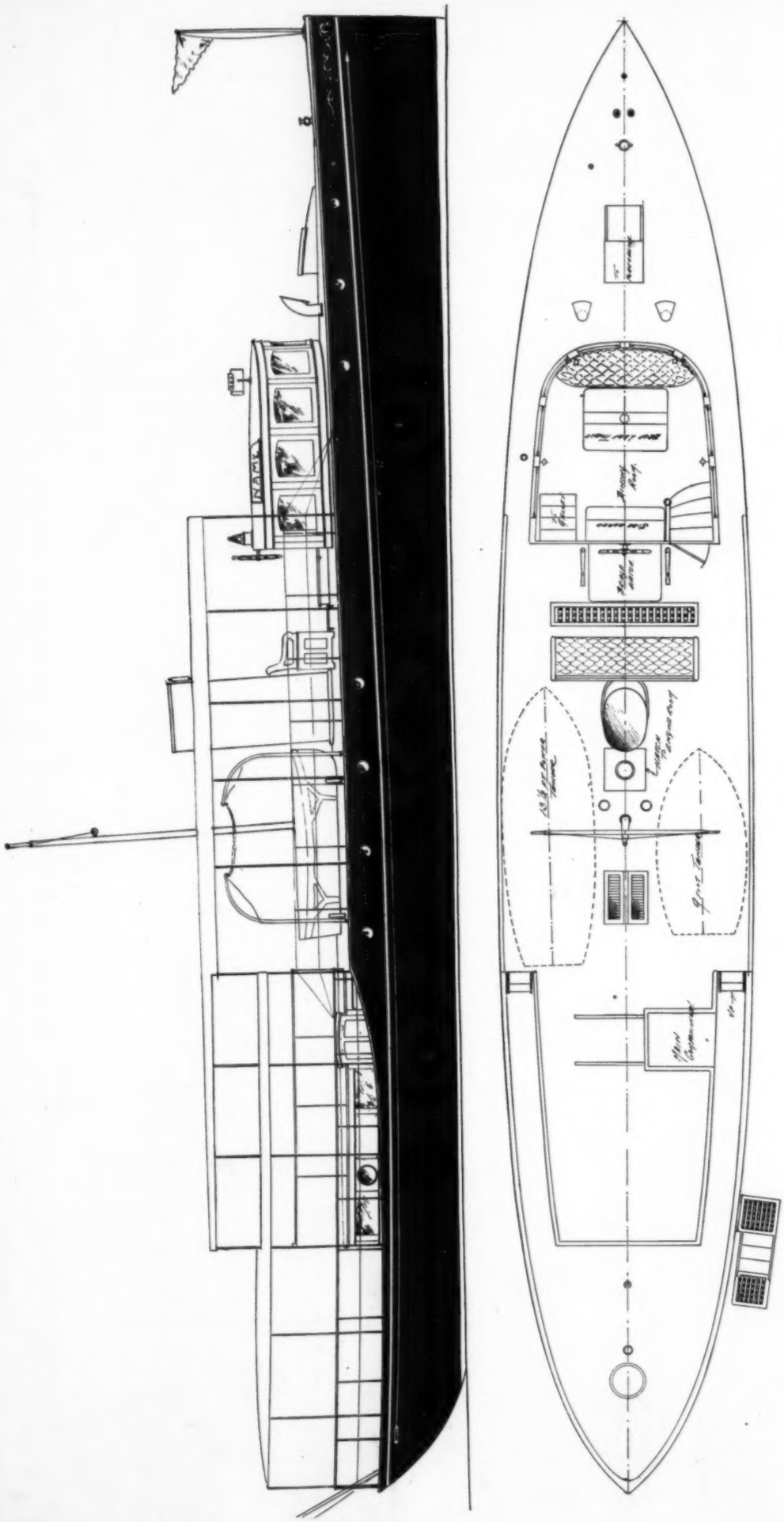
As may be seen from the designs, the vessel is of the flush-deck type, with a bulwark rail extending from 12 to 15 inches above the main deck line. The bridge is above the forward deck house, and the entire deck space is covered by a removable canopy. Plenty of light is furnished to the deck houses through large windows and ports, and the staterooms aft are lighted through a trunk cabin.

Control for the vessel is also provided under the bridge deck, and a Pullman berth is supplied in this room for emergencies. Aft of this deck house is the owner's stateroom, which is equipped with a large brass bed, a desk and a bureau, and which communicates with a large closet containing a chest of drawers. Next to this, upon the port side of the vessel, is a large toilet room for the use of the owner.

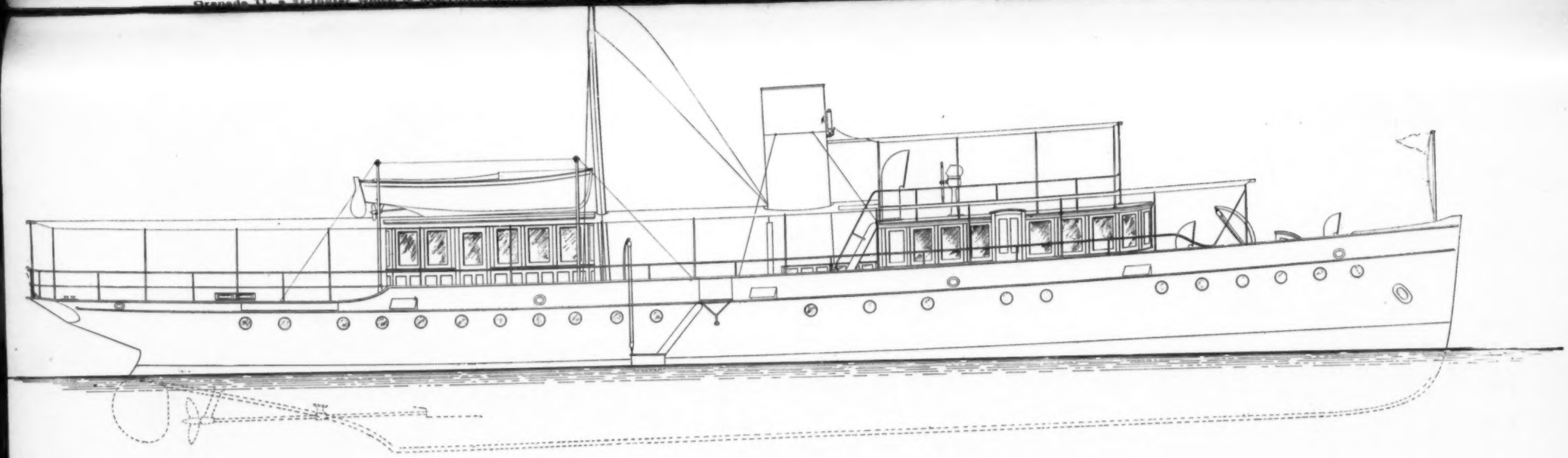
The vessel is intended for both Florida and coast cruising and will without doubt be able to maintain a very fair average speed.

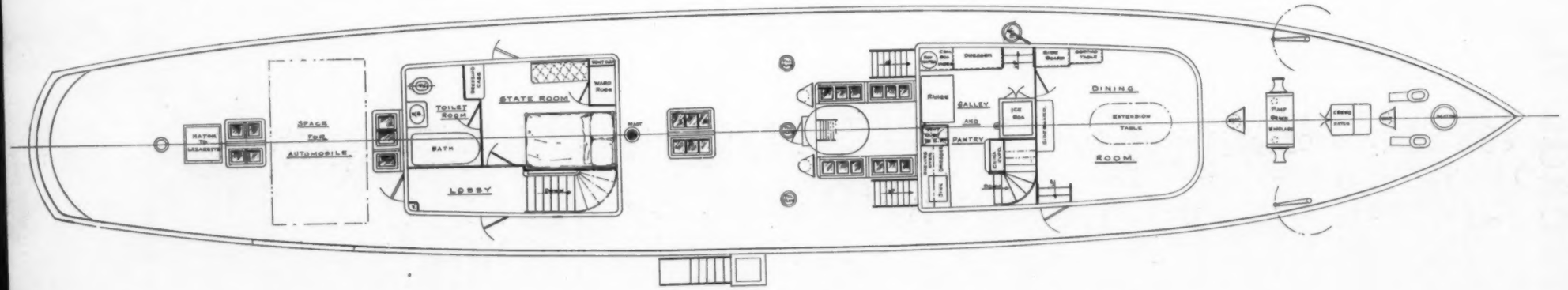


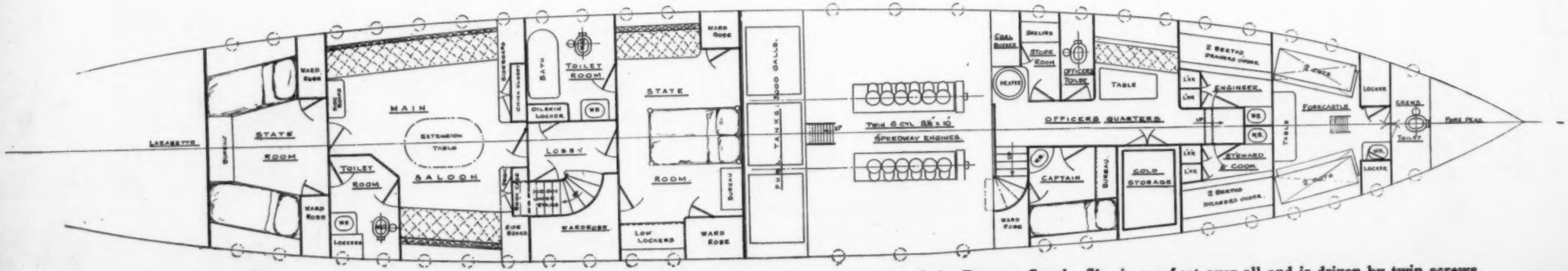
The above and below-deck arrangements of the new 90-foot cruising yacht by Whittelsey & Whittelsey, of New York City. Note the excell ent division of stateroom space.



Stepanda II., a sixty-foot yacht which is described upon page 32. The design is by the Luders Marine Construction Co., of Stamford Harbor, Conn., and she is building for







This deep-sea cruiser, which is described upon the following page, is designed for service at the opening of the Panama Canal. She is 110 feet over all and is driven by twin screws.

Granada II, a 71-Footer.

A Raised Deck Cruiser With Good Speed Designed for Florida Use. Twin Screws Used to Reduce the Draft and a Number of Special Features That Have been Adopted for Use in the Southern Climate.

THE excellent service rendered by the 60-footer Granada over a period of three and one-half years has prompted the owner, Mr. Herman Brill, of Philadelphia, to return to the designer and builder of that vessel, the Luders Marine Construction Company, of Port Chester, N. Y., for the 71-footer shown upon page 30.

The new boat, Granada II, will be of the raised-deck type with 12-foot 4-inch beam, of exceptional freeboard and designed especially as a fast sea boat, a speed of 12 to 13 miles being expected.

The general arrangement, as shown on the plans, indicates accommodation for a party of four for extended cruises, as the storage and locker space is unusually generous. Since the boat will be used in Florida, there are a number of features that have been adopted especially for that service.

The twin screw arrangement will reduce the draft to an actual 3½ feet, with the keel or shoe the deepest part of the vessel. The water and gasoline tankage and the ice space capacity are unusually large for a boat of this size and speed. A special tank, one of three, has been provided as storage for spring water, a most desirable feature for southern work.

The construction of the hull is about the same as generally found in this type, but depending upon good construction and fastenings for strength rather than mere weight of scantlings. The general finish of the boat is to be of the very finest. The vestibule and deck house are to be entirely of mahogany, for which panels have been selected of the very choicest graining procurable.

The two staterooms are to be finished in white enamel, oil rubbed to an egg-shell finish; mahogany trim and mahogany doors will relieve the severity of the white.

The propelling machinery will consist of two 45-h.p. motors turning at 450 revolutions; they will be controlled from the bridge, dispensing with a man continuously in a warm engine room. Electricity is to be furnished by an independent generating set supplying current for storage batteries and a tungsten lamp outfit.

The crew are accommodated in the forecastle, which is equipped with a toilet and which is entered through a hatch from the forward deck. The galley and store rooms are below deck just under the deck house which is used as a dining saloon, so that all the stores are in an accessible position and yet are not in the way.

The motor room is amidships and contains in addition to the engine equipment a workbench and the electric lighting plant. There is also a berth in this room as well as a washbasin with running water for the use of the engineer. The gasoline tanks, two in number and of large capacity, are just aft of the motor compartment.

The living quarters and staterooms are in the after portion of the vessel and are very commodious, considering the size of the craft. A large sitting room, equipped with an extension sofa, a table, a mirror desk, a chiffonier and a Pullman berth, extends across the full width of the space, and this is a very desirable room, inasmuch as it is nearly amidships and as thoroughly separated from the noise of the motors as are the other rooms, since there are heavy watertight bulkheads between the motor room and the other compartments aft.

A swinging door opens from this sitting room into a vestibule aft which communicates with a large bathroom upon the port side and the main companionway upon the starboard side. There are also commodious closets and linen lockers. The end of this passage communicates with a stateroom at the stern of the vessel, equipped with two berths and giving entrance directly into the bathroom.

The bridge is located aft of the deck house and is provided with a comfortable seat just forward of the stack. A hatch from the deck gives access to the engine room which is well ventilated by the stack.

The vessel is well lighted and ventilated through the ports, skylights in the deck and Pullman windows in the trunk cabin section in the after part. The deck house is lighted by large windows and is very comfortably fitted. Communication is had with the galley below through a stairway upon the port side.

This boat will be the last to be turned out from the Port Chester shops of this company, as all future work will be done at their spacious new plant on Stamford Harbor, Conn. It is a rather odd coincidence that the first and the last built boats from the Port Chester works were for the ownership of Mr. Brill.

A Deep Sea Cruiser.

A 110-Foot Cruising Yacht Which Will See Service in the Region of the Panama Canal. A Roomy Vessel With Many Up-to-Date Features That Should Prove Very Attractive.

A 110-FOOT twin screw cruising yacht of a type intended for deep sea service has just been designed by the Gas Engine & Power Company and Chas. L. Seabury & Company, Cons., Morris Heights, New York City, for a yachting enthusiast who wishes to have the vessel completed in time to use at the opening of the Panama Canal. This yacht has a waterline length of 101 feet, a beam of 18 feet, a depth of 10 feet and a draft of 6 feet 3 inches. The plans call for a construction of steel, and she is to be equipped with two six-cylinder 8½-inch x 10-inch air starting and reversing Speedway engines of 150 h.p. each. With twin screws driven by these motors, a speed of 12 to 14 miles an hour is expected, and as the fuel tanks have a capacity of 3,000 gallons, the cruising radius will not be greatly limited.

The boat is well laid out and is more roomy than the average vessel of her type. She will be equipped complete with all the latest up-to-date features, and a noticeable innovation is the reservation, upon the after deck, of space for carrying a motor car.

There are two deck houses, the roof of the forward one being occupied by the bridge. This forward deck house is well lighted and is intended for use as a dining saloon, the galley and pantry being just aft and communicating with it through a swinging door. A stairway extends downward through the galley and leads directly into the officers' quarters forward of the motor room.

The after deck house contains a large stateroom with wardrobe, and opening from it a bathroom. This stateroom is entered through a lobby upon the starboard side aft or directly from the port side.

The forecastle is occupied by quarters for the crew, and forward of this is considerable locker space and a crew's toilet. Just aft of this are berths for the engineer, steward and cook, the engineer's being located upon the port side, and the others upon the starboard side.

Aft of this compartment are the officers' quarters, with a cold storage room upon the starboard side, and just aft of this, the captain's stateroom. Upon the port side of the vessel is an alcove with a table, the officers' toilet, a stateroom, coal bunker and heater.

The motor room is a trifle forward of amidships, and the fuel tanks are located just aft of this, being separated by bulkheads.

The after portion of the vessel is occupied by a main saloon, opening aft from which is a toilet room with staterooms both forward and aft. A large stateroom containing a double bed, lounges and bureaus is placed just aft of the fuel tanks, and this is connected directly with a bath upon the port side and with a wardrobe upon the starboard side. A lobby leads from this directly into the main saloon. Aft of the main saloon is another stateroom, equipped with a bureau and two wardrobes, communicating directly with the toilet upon the starboard side.

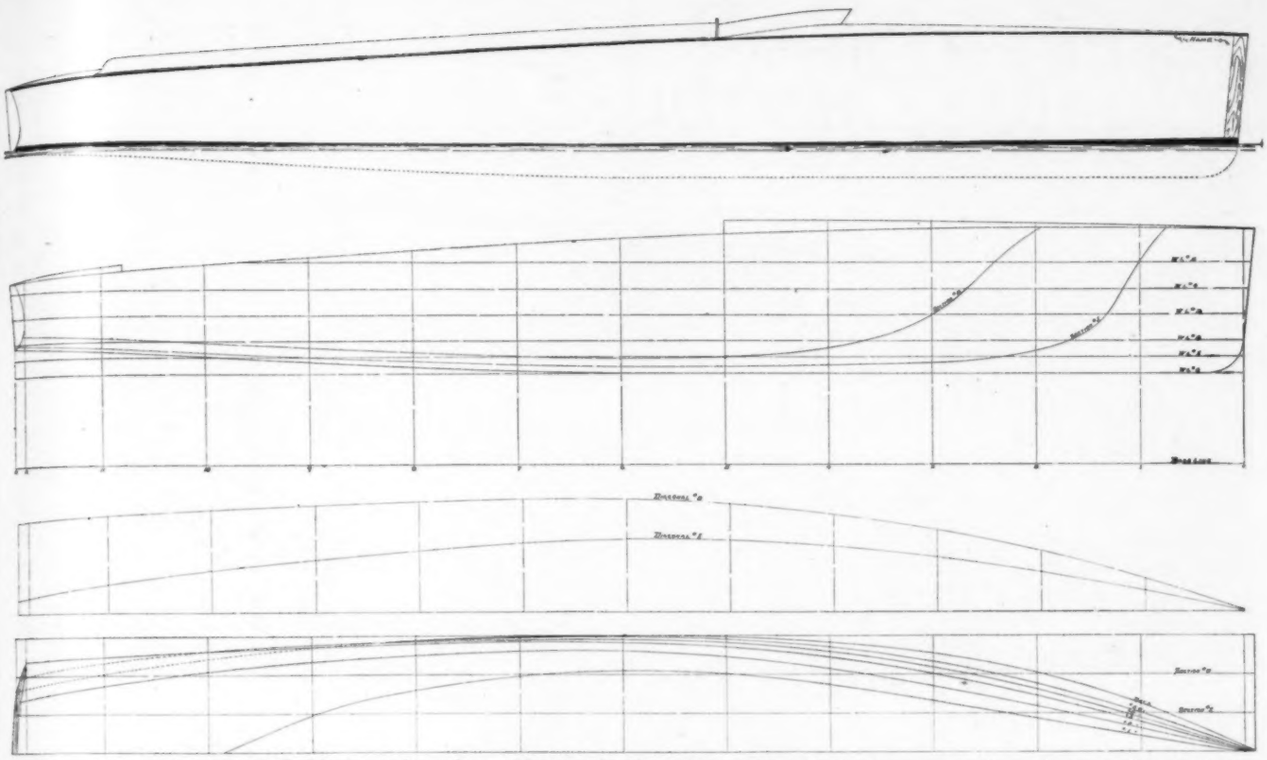
This craft is built almost upon ocean-going lines and, in fact, it is the intention of her owner to use her to a considerable extent for cruising along the coast. She has sufficient freeboard to make her a dry craft and she is well equipped with ports to give light and ventilation below decks.

The unusual feature of the accommodations of this vessel lies in the amount of room afforded to guests and the things that have been thought out for their convenience. The owner can make his headquarters in the after deck house, leaving the entire after portion of the vessel below decks for the use of his guests. The main saloon furnishes a pleasant sitting room for them and if there is a large party aboard this space can be used as a stateroom in emergencies. With a bathroom and an extra toilet room for their convenience there should be no difficulty in accommodating a number of people.

The fuel tanks are three in number and they are filled from the deck aft of the stack. They are separated from the after portion of the vessel by watertight bulkheads and are so located that they have little effect upon the trim of the boat, although making her a trifle steadier owing to the added weight amidships.

The galley, just aft of the dining saloon in the forward deck house is worthy of note, since it is so well equipped and of a larger size than is ordinarily found upon any but the largest yachts. It extends the full width of the house and is combined with a pantry, leaving everything in an accessible position. A good-sized range is located in this compartment and a water heater for the supply to the entire vessel. Plenty of dresser space and china closets are also provided and the ice-box is located where it can be most easily filled from the outside.

Owing to the sturdy lines of this vessel and her comparatively deep hull, she should prove very able in a seaway, and with her large accommodations she will be very comfortable in every respect. She carries a signal mast aft of the stack and a dinghy over the after deck house. The lines of this vessel will be found upon the preceding page.



This 30-foot runabout by C. S. Linch would make an ideal tender for a fast yacht. She has a guaranteed speed of 25 miles per hour.

A 30-Foot Runabout.

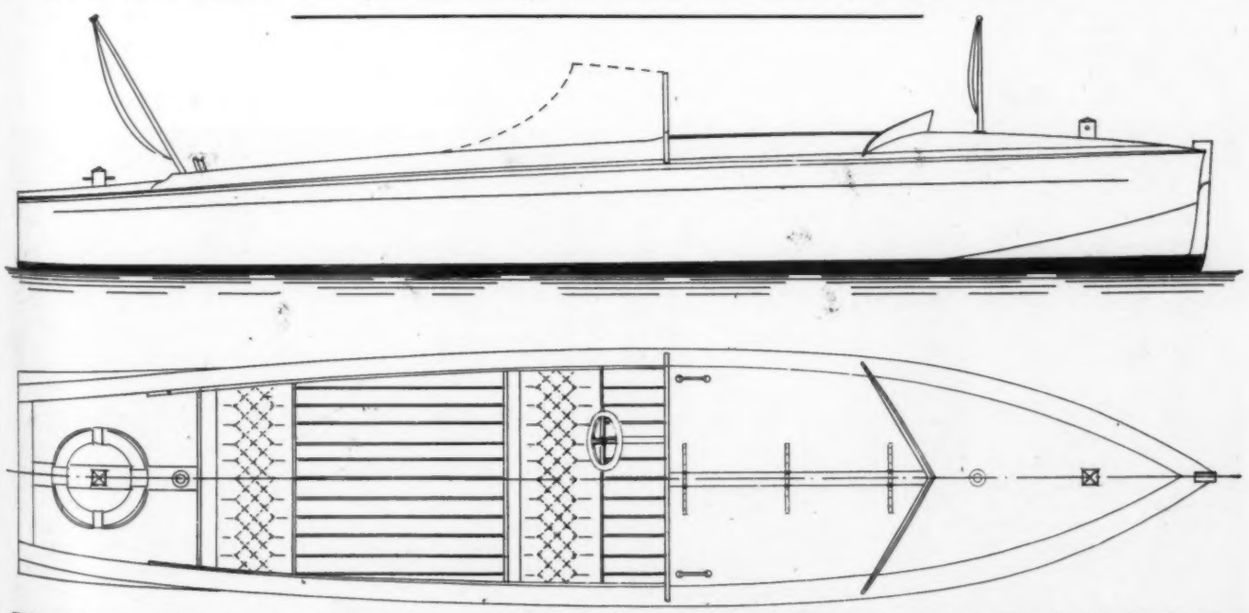
One of the Typical Class of Small Fast Boats That Have Become So Popular at Summer Resorts for Convenient Service. A Handsome Craft Giving High Speed with A Comparatively Small Power Plant.

A SPEEDY 30-foot runabout has just been designed by Chas. S. Linch, 52 South 23rd Street, Flushing, N. Y., for a yachtsman in Bordentown, N. J., who wished a medium-sized, serviceable craft which would give him sufficient speed and yet would be very easy to handle. This runabout is equipped with a 40 h.p. Sterling and she develops without difficulty a speed of 25 miles per hour.

The materials used in the construction of this craft are exceptionally suitable, the keel being of oak with planking of selected white cedar and the sheer strake, plank sheer and coaming of selected mahogany.

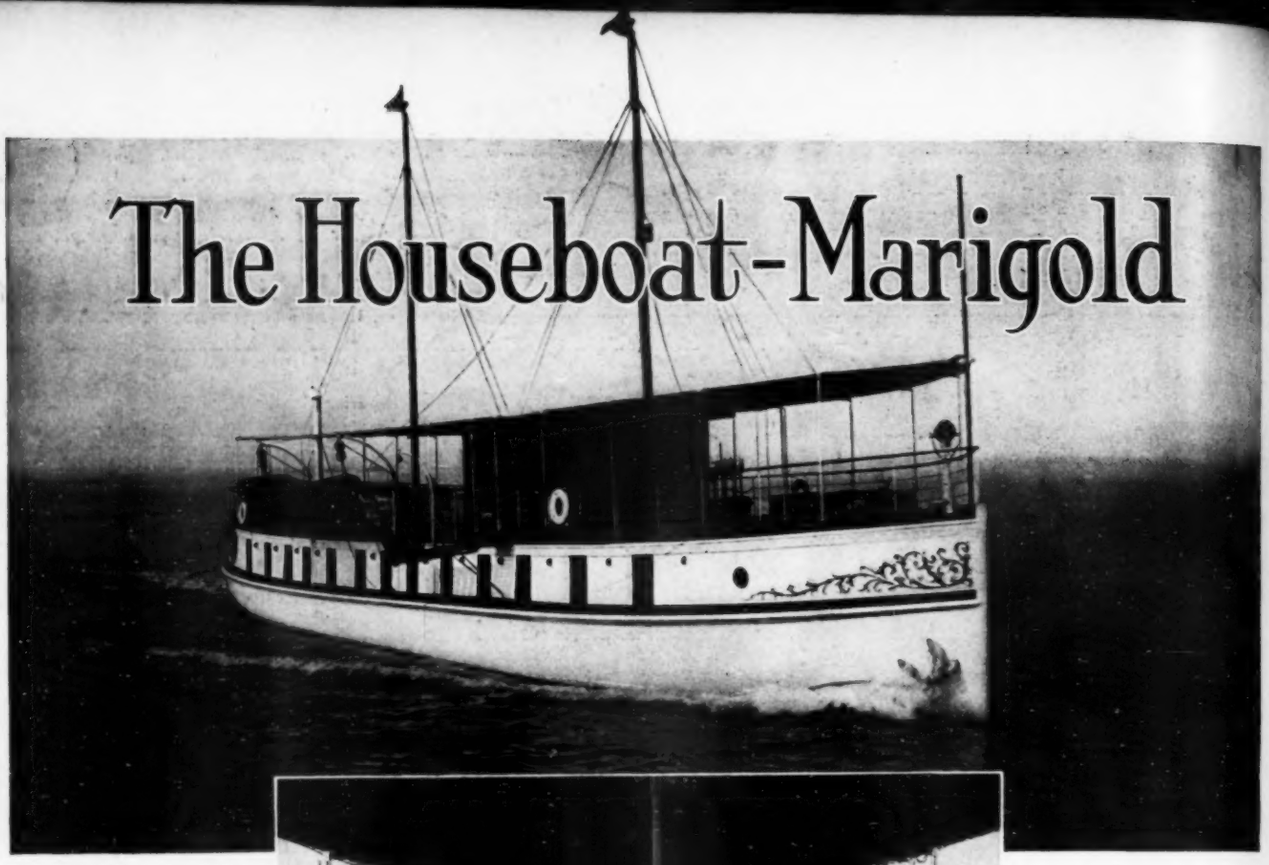
A stern of the conventional V-transom type was used, as it was found that with the motor located forward and the clean lines of the boat, this type of stern prevented squatting more than any other. The coaming is low and reaches a point at the forward end of the cockpit, so that with the natural sheer of the vessel, she should prove very dry, even when running into a heavy head wind.

While this runabout is not built for racing, her owner will undoubtedly enter her, as she should make an excellent showing with any boats of her class. The speed of 25 miles per hour is somewhat unusual with a 40 h.p. motor, and her performance will be watched with interest by many yachtsmen who find this type of craft particularly useful in acting as tenders for larger boats.



This 22½-foot runabout has been designed for the Quebec distributors of the Gray Motor Co., by Ernest Rolland, of 55 St. Francis Xavier Street, Montreal.

The Houseboat-Marigold



The helmsman's position on the forward deck.

MARIGOLD, the houseboat shown in the photographs, was built recently at Burgers Yard at Manitowac, Wis., and designed by Gielow & Orr, of New York City, for Mr. Edbert H. Gold, a member of the Chicago Yacht Club, especially for a prolonged cruise in Georgian Bay, Canada. She is constructed of wood in a thoroughly substantial manner and combines the seagoing qualities of a good motor yacht with the more material comforts of a houseboat.

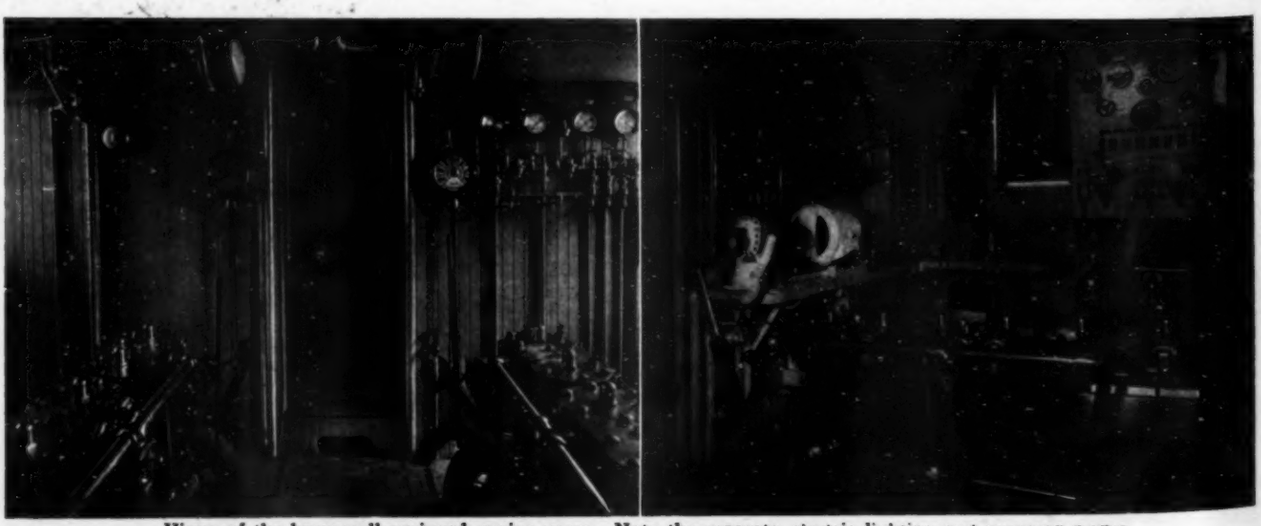
As the headroom under several bridges across the Illinois and Michigan Canal is only 11 feet 6 inches, a novel feature has been worked out in the construction of the deck house. This has been made up sectionally, so that when passing through this canal, the deck house can be lowered permitting the yacht to pass freely under the bridges.

The interior finish of the boat is panel mahogany. The owner's stateroom is in the forward part of the vessel, having a floor space of over 100 square feet. It is fitted with a brass bedstead, divan, chiffonier bureau, mirrors, etc., all in Circassian walnut and has large and ample wardrobes. Forward of the owner's stateroom is his dressing room and bath fitted with porcelain lavatory, bathtub, etc., and open nickel-plated plumbing throughout. Aft of the owner's stateroom are two more staterooms, a bathroom, large store-room, lounging-room and a vestibule with stairway leading up to the deck house. Next aft of this is a dining-room, 12′ x 15′, finished and furnished in mahogany throughout, and aft of this is the galley and butler's pantry, the engine room and staterooms for the officers and crew.

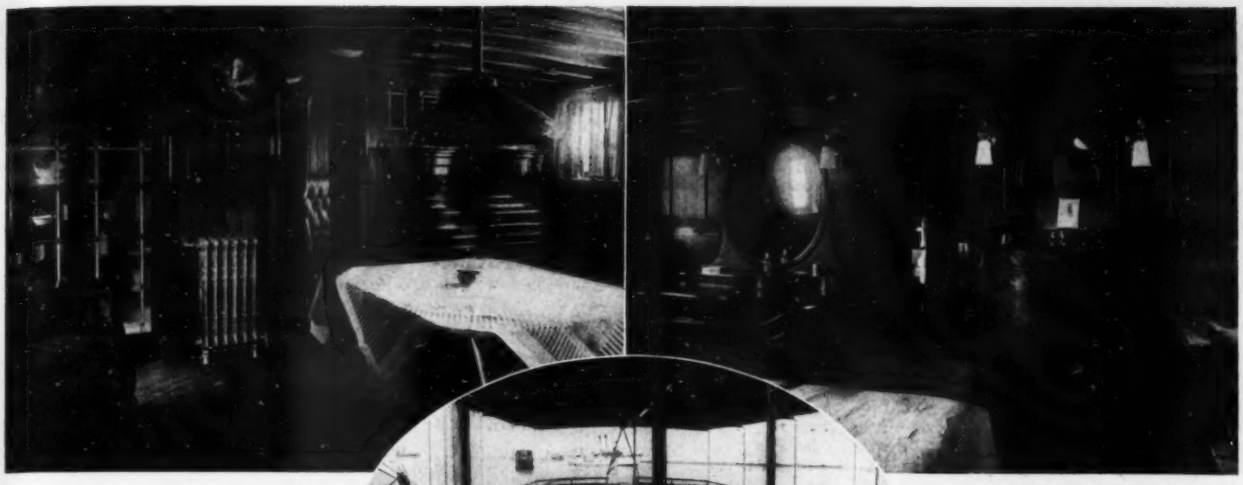
The gasoline tanks have a capacity for 1,200 gallons and ample fresh-water tanks are provided so that the yacht can cruise in salt as well as in fresh water. Cylindrical tanks, arranged to work under air pressure, provide running water throughout the yacht. An electric lighting plant, searchlight, electric pumps,

Dimensions of Marigold.

Length over all	95 feet
Beam	16 feet 10 inches
Draft	42 inches
Power plant,	
Two six-cylinder 50 h.p. Standard motors	
Speed	12 miles per hour
Cruising radius	1,500 miles



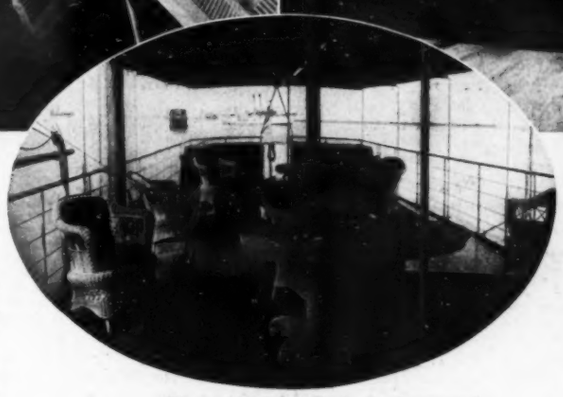
Views of the large well-equipped engine room. Note the separate electric lighting and pumping plants.



In the interior a degree of comfort is obtained that is impossible in a conventional boat of the same length.

compressors, storage battery and a steam-heating plant are provided. The yacht is equipped with a 17-foot power tender, 14-foot cutter and a 10-foot dinghy. In fact, the equipment throughout is most complete and with provisions made for every emergency.

Her lines are a combined perfection of seagoing qualities with a minimum of draft and, were it not for the square windows, would show all the characteristics of a seagoing motor yacht. These windows, however, add so much to the owner's comfort both in regard to light and ventilation that it was thought best to use them instead of the very much smaller circular ports. The photographs show better than any description the roominess and comfort of the boat.



The midship deck is unobstructed.

The Regatta at Cambridge.

The Excellent Showing Made by Tech Jr., a Promising New 20-Footer.

By Stuart Stevens Scott.

THAT TECH, JR., owned by Gen. T. Coleman duPont, is going to be heard from in the 20-foot class this year was readily demonstrated at Cambridge, Md., on June 29, when she logged off the miles at the rate of 43 per hour. She is as smooth a running craft as has ever been sent across the water and, although more speed has been claimed for the Sea Rabbit, owned by Commodore Alfred I. duPont; yet the latter's boat was not at the regatta because her engineer, a few days before, loaded her with oil that contained emery and completely ruined her engine.

The malicious ruining of the Sea Rabbit's engine, the burning of Sand Burr II, the breaking down of Peter V. Hoy's new boat, the breaking down of Miss Virginia Kinney's Coyote, the failure to get the Baby Reliance ready, and, goodness only knows! what to many of the other entrants resulted in the club postponing the races for the Atlantic Coast Championship in the 20-foot, 26-foot and free-for-all classes.

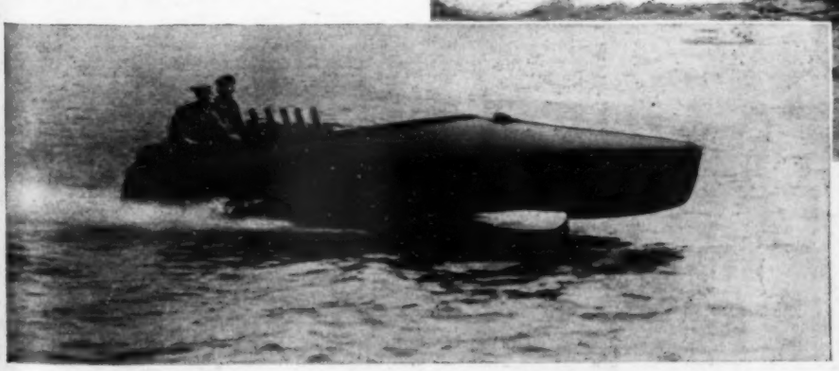
When the morning of June 28 broke the regatta awakened to find two 20-footers—Tech Jr. and James Busic's Colma—and one 26-footer—Earl Dodge's Minnow—on hand. Mr. Busic's boat was plainly out of the game inasmuch as while she made a great splutter she would not run more than 20 miles, and that was nothing to bank on as against the Tech Jr., which ran like a clock.

Of course, there was nothing left for the regatta committee to do but to withdraw the Atlantic Coast Championship trophies and offer a trophy that represented the championship of the Chesapeake Bay. This cup was offered for a race between the Tech Jr. and the Minnow and on the afternoon of June 29 they went over the line almost side by side.

From the very takeoff, however, the Tech Jr. took the lead and opened water every minute; indeed, at the rate they were going had the race been 20 miles instead of ten, the Tech Jr. would have won by two minutes. The summary of the race is:

Tech Jr.	4:19:20	4:34:48
Minnow	4:19:20	4:36:34

Minnow, a 26-footer, owned by Earl Dodge.



Tech, Jr., owned by General T. C. DuPont, beat the 40-mile mark.

The course was a two and one-half miles' straightaway, twice around, which made four turns. On the turns the Tech Jr. lost a trifle but on the straights she made 43 miles per hour, which is pretty good going.

While there was great disappointment on account of the fliers not showing up there was some excellent racing in other classes, notably the displacement boats, Sea Dog, owned by

D. T. Mallory, of Baltimore; Glimpse II, owned by C. H. Carpenter, of Oxford; Napanee, owned by James Slacum, of Cambridge; Smalley, owned by Harry Sinclair, of Oxford, Md., and Louise, owned by William Cannon, of Cambridge.

One of the features of the regatta was the 5-mile handicap ladies' race in which the ladies piloted the boats. Mrs. James Slacum steered the Napanee, Mrs. Arthur D. Foster the Sea Dog and Miss Cannon the Louise. The results were:

Boat.	Start.	Finish.
Sea Dog	3:12:00	3:25:20
Louise	3:09:45	3:27:18
Napanee	3:09:45	3:27:18

The Napanee and the Louise furnished much entertainment for the hundreds that were on observation boats along the course and they had two match races of their own. One race was 5 miles and the other 10, and both were won by the Napanee, though by small margins.

The Sea Dog and the Glimpse II also had two 10-mile match races. In the first event, on June 28, the Sea Dog was the victor by 90 seconds and when it was suggested that the second race, the next day, be a handicap, Mr. Mallory readily agreed. Mr. Carpenter demurred, saying that Glimpse II didn't need any time as she could beat Sea Dog flat.

The argument between Messrs. Mallory and Carpenter was as pretty a bit of sportsmanship as the writer has ever heard, as it is rare that a man will not take a handicap when it is so freely offered. Not so with Mr. Carpenter, and the results justified him, for the times were:

Glimpse II	3:40	4:10:30
Sea Dog	3:40	4:13:10

The Sea Dog had her revenge, however, when she went into a 10-mile race with the Smalley and the Napanee, winning handily. The times were:

Sea Dog	3:55	4:09:15
Smalley	3:55	4:11:20
Napanee	3:55	4:13:55

The Colma made just one attempt to race, being pitted against the Minnow, and after covering about half of the course, dropped out. The Minnow started at 3:06:15 and finished at 3:27:30.

A race that aroused local interest was a 10-mile event for one-cylinder runabouts, in which four were entered and only two finished. The results were:

Elizabeth	10:42	D. N. F.
M. L. S.	10:42	11:17:12
Can't Help It	10:42	11:14:40
Mary	10:42	D. N. F.

There were but two craft entered in the cruiser event—Elsie III, owned by St. George Barber, of South River, Md., and Isabella II, owned by Joseph Thompson, of Ventnor, N. J. —but the race was interesting because both boats are practically the same, varying only in model. Each is 52 feet over all and each has a 6½ x 8½ 20th Century motor. They started nearly side by side and maintained their respective positions until near the finish when Isabella II drew ahead. The results of the 5 miles were:

Elsie III	4:45:34	5:15:05
Isabella II	4:45:38	5:14:25

The Races at Davenport.

(*Continued from page 4.*)

has the appearance of an ordinary family boat or tender, rather than that of a record-breaker. She is but 19 feet 11 inches long, has a broad, blunt bow, and is completely filled with machinery, and when driven at high speed lifts almost entirely out of the water.

This ended the speed contests, a few local handicap races were on the program for the next day, but proved uninteresting. The Valley Regatta this year was a history-making one. The number of boats that were in attendance, the immense throng that viewed the races and the large number of contestants in the various races passed all expectations. The races themselves furnished plenty of keen competition, and the marvelous work of the Ryan boats in breaking association and world records makes the regatta a noteworthy one.

However spectacular the races may have been, they were not the only important features of the annual regatta, for in connection with the races is held the annual convention of the Mississippi Valley Power Boat Association. This year's convention was marked by the holding of three sessions, each of which was largely attended and at which much legislation was enacted for the betterment of the boatmen. A new rank of admiral was added to the president, that of vice-admiral to the vice-president, and rear-admiral to the office of second vice-president. A committee

Photograph by Edwin Levick.

A study in wakes. Harry Payne Whitney's Dixie Jr., one of the class of 20-footers designed by Tams, Lemoine & Crane and equipped with Sterling engines, showing how the hydroplane skims over the surface of the water.

was named to investigate the advisability of adding new classes, and revising some of the racing rules. Another committee was named to arrange for the holding of a motor boat show under the auspices of the association at St. Louis early in next January. The association was authorized to purchase proper buoys and other paraphernalia for the laying out of the race course, and the handling of the races. Keokuk, Iowa, was awarded the annual regatta for 1913.

The election of officers resulted as follows: President, Joe Kelso, Bellevue, Iowa; 1st vice-president, Chas. P. Hanley, Muscatine, Iowa; 2nd vice-president, Theo H. Lembrecht, Davenport, Iowa; secretary, W. V. Kidder, La Crosse, Wis.; treasurer, R. A. Maples, Clinton, Iowa. Executive Committee—Dr. J. W. Dixon, Burlington, Iowa; A. C. Decker, Keokuk, Iowa; St. C. Ede, Dubuque, Iowa.

The meeting came to a close Saturday evening with a Dutch lunch served at the Commercial Club to about 500 guests. At this time the prizes were awarded and a toast program carried out.

This year's regatta was a success in every way. To one who has followed the Valley Association races closely, this year, must be impressed with the fact that the heavy displacement boat has given away almost entirely to the light, high-powered hydroplane, and also, with the forceful evidence of the progress that is being made in the construction of marine engines. Not a single craft being disabled or put out of a race from motor trouble, and the winning boats hardly missing an explosion. Everyone who attended had a week of royal good sport.

These three days were really the beginning of a very busy season for many of the faster craft, as most of them are planning to compete in at least several of the big meets that are shortly to follow. August 1st, 2d, and 3d will see them at Frontenac for the Gold Challenge Cup races, and the following week will take them to Hamilton, Ontario, to the Great Lakes Power Boat League Regatta. The week of August 10-17 Chicago will be in the limelight, and closely following this will occur the elimination trials for the International Races on August 22, 23 and 24, which will be held again at Huntington Harbor, Long Island, and the finals at the same place August 31 and September 2.

Tide Table for August.

NOTE: This table was compiled for the Port of New York. To find the time of high or low water at other points, add or subtract the increment in the table:

DAY OF MO.	WEEK.	HIGH WATER. A.M.	HIGH WATER. P.M.	LOW WATER. A.M.	LOW WATER. P.M.
1	Thurs.	9:45	9:53	4:03	4:00
2	Fri.	10:18	10:27	4:31	4:36
3	Sat.	10:59	11:05	5:00	5:15
4	Sun.	11:42	11:45	5:31	6:02
5	Mon.	.....	12:31	6:10	6:57
6	Tues.	12:32	1:26	7:00	8:01
7	Wed.	1:27	2:28	7:57	9:14
8	Thurs.	2:32	3:35	9:06	10:30
9	Fri.	3:49	4:43	10:25	11:36
10	Sat.	5:12	5:48	11:36	.....
11	Sun.	6:24	6:47	12:35	12:41
12	Mon.	7:25	7:43	1:28	1:40
13	Tues.	8:20	8:36	2:18	2:32
14	Wed.	9:10	9:27	3:08	3:25
15	Thurs.	10:00	10:17	3:56	4:17
16	Fri.	10:48	11:07	4:43	5:11
17	Sat.	11:38	11:58	5:31	6:06
18	Sun.	.....	12:30	6:24	7:05
19	Mon.	12:53	1:25	7:16	8:08
20	Tues.	1:58	2:24	8:14	9:14
21	Wed.	3:11	3:24	9:16	10:18
22	Thurs.	4:25	4:22	10:15	11:14
23	Fri.	5:29	5:16	11:12	.....
24	Sat.	6:18	6:03	12:03	12:01
25	Sun.	6:54	6:43	12:45	12:43
26	Mon.	7:22	7:19	1:22	1:24
27	Tues.	7:48	7:50	1:54	1:58
28	Wed.	8:12	8:21	2:24	2:30
29	Thurs.	8:39	8:49	2:53	3:01
30	Fri.	9:10	9:20	3:20	3:34
31	Sat.	9:46	9:56	3:47	4:10

To find the approximate time of high and low water at any of the following points add (+) or subtract (—) the following times from the time of high or low water at New York:

Halifax	—0:06	Yonkers	+0:56
Portland	+2:35	West Point	+3:02
Boston	+3:02	Albany	+9:54
Portsmouth	+2:56	Sandy Hook	—0:40
Gloucester	+2:57	Philadelphia	—0:36
Newport	—1:07	Cape May	—0:11
Block Island	—1:17	Baltimore	—1:28
New London	+1:05	Washington	+0:05
Hartford	+8:43	Old Pt. Comfort	+0:28
New Haven	+2:58	Savannah	—1:28
Bridgeport	+2:52	Key West	+0:11
Willet's Pt.	+3:02	Galveston	+2:44

Photograph by Edwin Levick.

—and Avanti, one of the 20-foot Elco-planes designed and built by the Electric Launch Co. for August Heckscher. Note the corrugations in the wake caused by the peculiar fluted planes with which these craft are equipped.

The Yachtsmen's Club Ocean Race.

Eight Cruisers in Two Classes Compete in the Second Annual Ocean Race of the Philadelphia Organization.

By E. H. Rosenberger.

A PRETTIER fleet of racing boats never set sail in a speed contest than the eight cabin cruisers which took part in the Yachtsmen's Club Ocean Race at Atlantic City, on July 7 and 8. They were the pick of the hundreds of motor-powered craft whose home is along the various coast towns of New Jersey.

The race was the most successful of the Yachtsmen's Club events. The sea was just lively enough to make the going good. The course is considered one of the best in those parts, and the time made is gratifying to the skippers, while the committee is delighted in the manner of the finish and the almost total absence of stragglers.

There were four new boats pitted against four old ones. The cruisers rated from 52.04 down to 38.08, and were divided into two classes, those rating over 41 and those rating under 41. This gave class A three old-timers with one new boat of unknown quantities and qualities. In the class B, Chelwood, the 40-footer owned by Rufus K. Lenning, of the Yachtsmen's Club, and which swept everything in her class last season, and which has already made a fine start in the same direction this year, had to contend with three new boats in the race. Chelwood met her defeat through misfortune, and it may take several more contests to determine whether Charles L. Lagen's Dream, which won the race in class B, is the better boat.

The course selected this year was chosen because of its safety, and because of its almost total absence of other craft likely to interfere, and because of the closeness of the shore in the event of trouble. The start was made off Young's Pier at Atlantic City; going S x W½ W 23½ miles, S SW ⅜ W 65½ miles; turning at Winter Quarter Lightship, and returning N NE ⅜ E 65½ miles, N x E ½ E 23½ miles to the place of starting.

In class A was Caliph, Vice-Commodore M. E. Brigham's boat of Havana racing fame, which won the race, making the 178 nautical miles in 17:11:10 corrected time. Marguerite II, the pride of the Tacony Sawmakers, owned by Commodore A. B. Cartledge, of the Keystone Yacht Club, and which won three long-distance ocean races just before coming to Atlantic City, won second place in her class. Mariada, owned by the

(*Continued on page 68.*)

Table of Results.

Class A—Start 1.05 P. M., Saturday, July 6.

Name	Rating	Time Allowance	Finish	Elapsed Time	Corrected Time
Caliph	43.07	2:48:55	9.05.05	20:00:05	17:11:10
Marguerite II	52.04	Scratch	7.23	18:18:00	18:18:00
Mariada	51.08	9:42	8.42	19:37:00	19:27:18
Luegeo II...	44.08	2:23:57	11.18	22:13:00	19:49:03

Class B—Start 11.40 A. M., Saturday, July 6.

Name	Rating	Time Allowance	Finish	Elapsed Time	Corrected Time
Dream	38.08	1:29:43	10.22.00	22:42:00	21:12:17
Mirna	42.01	Scratch	9.58.00	22:18:00	22:18:00
Chelwood ...	39.06	1:06:48	11.35.30	23:55:30	22:48:42
Eugenia II..	39.08	1:01:12	12.37.30	25:10:00	24:08:48

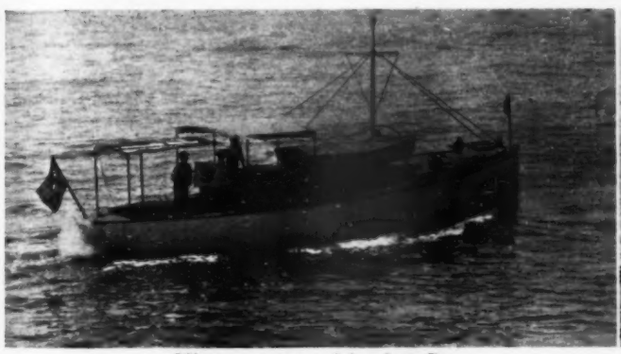
A Hydro Motor-Cycle.

An Ordinary Motor-Cycle Equipped with Pontoons and a Propeller Making It Amphibious.

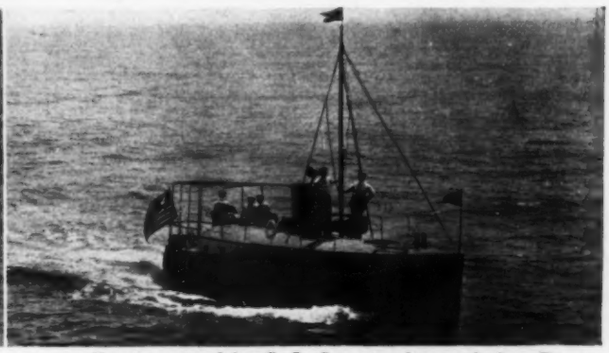
EUGENE FREY, a machinist of Oakland, Cal., has invented what he terms a hydro-motor-cycle. It consists of an attachment which may be applied in a few moments' time to any motor-cycle, converting it into a motor boat by reversing the two floats, carried one on each side of the saddle, and shoving a portable propeller shaft into place. Although, various attempts have been made before this to produce bicycles with aquatic attachments, the results have been more freaky than practicable thus far. Mr. Frey's invention seems likely to meet a number of demands, especially that of travelers in regions where neither land nor waterways can be depended upon for the entire distance. The attachment consists of two canoe-shaped metal floats, 14 feet long and 16 inches wide, which are balanced evenly on either side of the motor-cycle. Each of these floats has three air-tight compartments and is fastened to a light steel tubular frame. The front of the frame is fastened, without interfering with the steering of the machine, behind the handle-bars and the back of the frame is attached to the axle of the rear wheel by means of a common tandem nut. The floats are fastened to the frame, the lowest portion of which is six inches above the ground, by four hinges, thus permitting of their settling in the water or being reversed on land. When it is desired to change the motor-cycle into a water craft, the floats are simply reversed on their hinges and clamped down by a couple of steel tubes. The propeller drive contains the clutch, operating forward or backward, with a three-foot shaft of three-quarter inch steel, at the end of which is a propeller with three twelve-inch blades. In service, the propeller projects downward from the engine at an angle of about twenty degrees, the top blade being just below the surface of the water, and when not in use, a single bolt holds it at the rear of the seat. The outfit is steered by two small rudders, one at the stern of each float, which are connected to the front wheel by two flexible wire cords, and therefore work in harmony with the handle-bars. On land, the weight of the floats is partially borne by two small rubber-tired wheels.

Mr. Eugene Frey's amphibious motor cycle, the pontoons of which swing up clear of the ground when not in use. Note the propeller and shaft drive.

Caliph, winner in class A, and Marguerite II at the Ventnor City Yacht Club prior to the start of the Ocean Race.

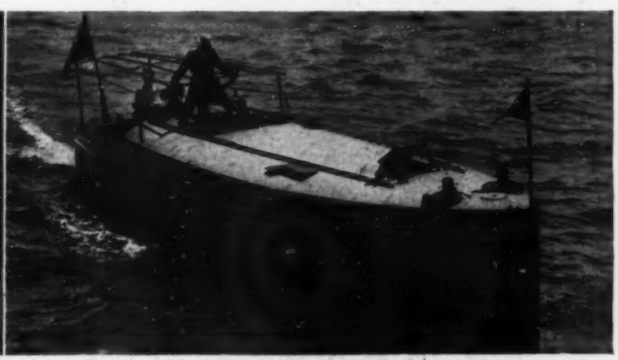


Mirna was second in class B.



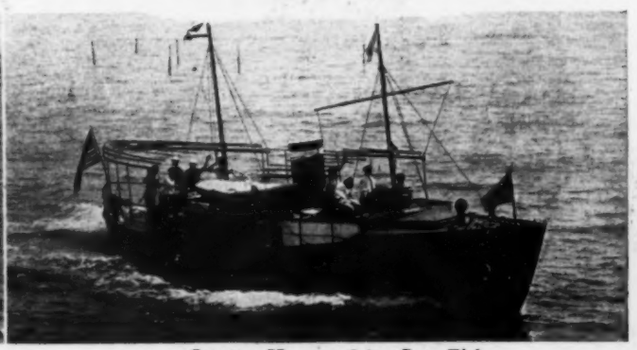
Dream, owned by C. L. Lagen, winner of class B.

Mariada, owned by R. H. and R. More.



Chelwood, owned by R. K. Lennig.

Eugenia II, owned by Dr. Eugene Swayne.



Luegeo II, owned by Geo. Fish.

Colonial Club's Cruising Race

A 183-Mile Run from the Colonial Club to Cornfield Reef Lightship and Return.

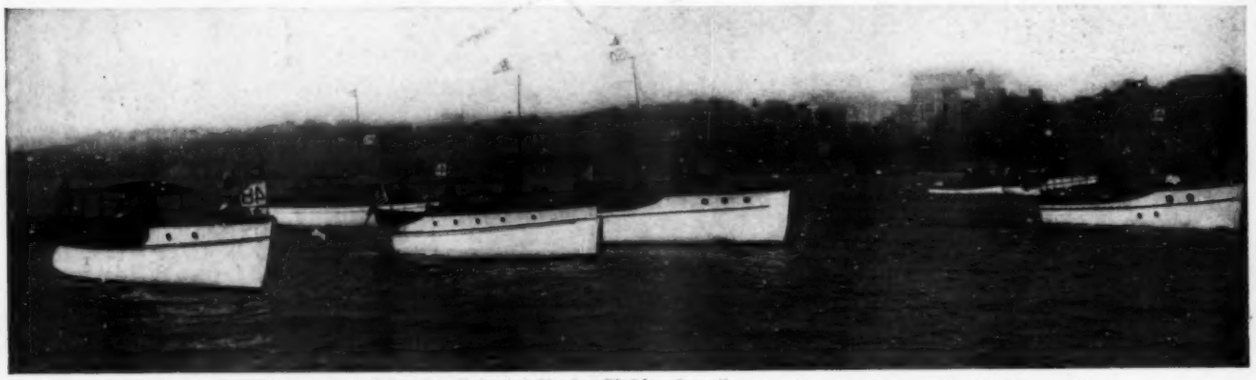
NINE of the fourteen cruisers that started in the Colonial Yacht Club's Long Distance Race on July 6th, finished within the time limit of 30 hours for the 183-mile run. The start was from their clubhouse at 138th Street and Hudson River, New York City, at 3:30 in the afternoon and the course took the racers down the Hudson, around the Battery, up the East River to the Sound and then to Cornfield Reef Lightship, off the Connecticut River and return. As the race was open to cruisers up to 50 feet in length, several of the larger boats that had not been seen in any of the races this year, were entered, together with several of those under 40 feet in length that have taken part in previous races.

The navigators had a chance to show their worth as a dense fog was encountered on the run down the Sound and some of them had difficulty in locating such a small object as a lightship. However, in general performances were remarkably good illustrating the practicability of navigating a small boat with a compass located in close proximity to the engine and electrical system when the proper adjustments are made for their effect.

The competing boats varied greatly in rating from that of the Alfred S., rating 28.9 to the Madelaine rating 53.64, which had to give the former boat over 12 hours' handicap. Alfred S, owned by H. S. Soldner, of the Orum Yacht Club, proved the winner by many hours; in fact, this little boat is practically unbeatable. She is just under 25 feet on the waterline, has a waterline beam of 7.67 feet and is powered with a single cylinder, 3" x 5½" Metropolitan two-cycle engine. She maintained a speed of 7.5 statute miles per hour for the course, which is excellent considering her very small power.

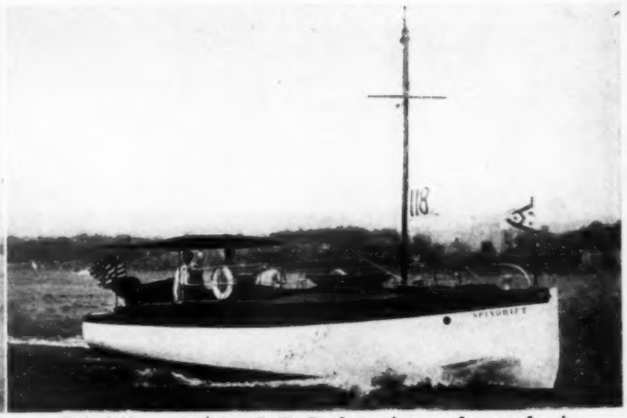
Francis H., owned by G. W. Hoertel, of the Hudson River Yacht Club, was second on corrected time and the old reliable Spindrift, owned by C. R. Butler, of the Albany Yacht Club, was third. Lida M., owned by C. P. Holland, was the only Colonial boat to figure in the results, and she finished a good fourth. The fastest time was made by Empire, owned by J. P. Luckenbach, of the Atlantic Yacht Club, her time for the course being 20 hours 40 minutes.

The prizes for the race were donated by Senator C. C. Hunt and consisted of a silver yacht model as first prize and six loving cups as other prizes.



Fourteen cruisers started in the Colonial Yacht Club's 183-mile race for the Senator C. C. Hunt prizes.

Alfred S., owned by H. S. Soldner, winner of first prize.



Spindrift, owned by C. R. Butler, winner of second prize.

Francis H., owned by G. W. Hoertel, winner of third prize.

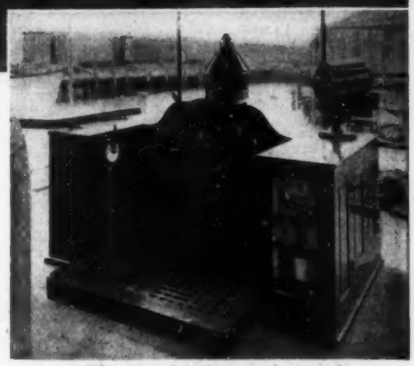
Lida M., owned by C. P. Holland, winner of fourth prize.

NAHMEOKA—A Cruising Houseboat

The comfortable after deck.

Specifications of the 95 - Foot Houseboat Nahmeoka.

Length, over all.....95 ft.
Beam.....18 ft. 6 in.
Draft.....3 ft. 3 in.
Power plant—two 100 h.p. Craig motors
Gasoline capacity ..... 1,400 gal.
Maximum speed.....15 miles an hour



The novel helmsman's stand.

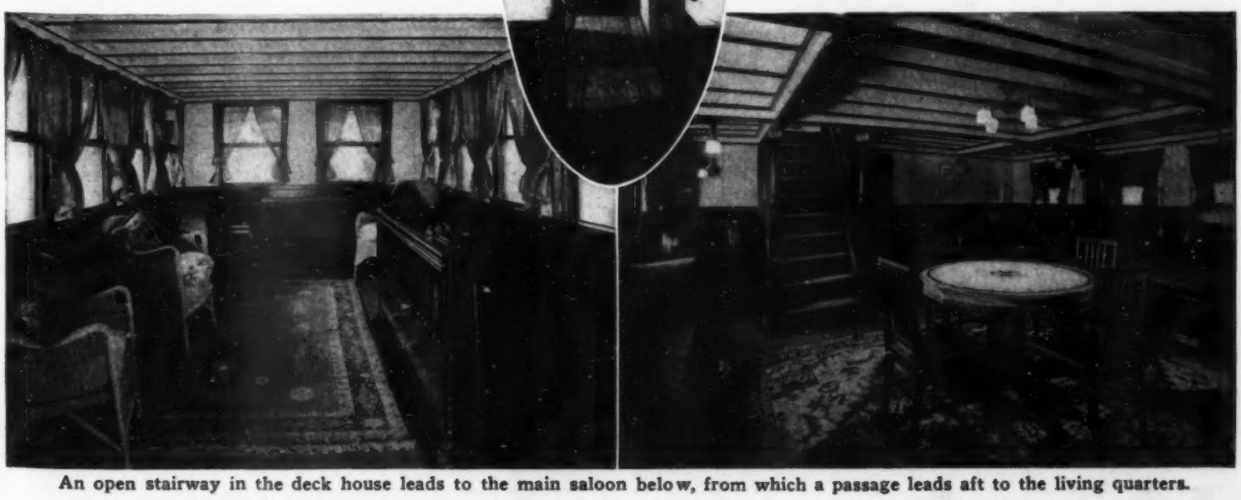
THE twin-screw shallow craft cruising motor yacht, Nahmeoka, designed and built by the Mathis Yacht Building Company, of Camden, N. J., represents the latest development of the semi-houseboat type of cruiser, which the Mathis Company has done so much toward perfecting. She is much more comfortable than the usual motor yacht of her size, but her yachty appearance has not been impaired. In fact she has a decided appearance of speed. When Ednada was turned out a year ago by the same concern, she won such universal admiration for her yachty lines, roominess on deck as well as below and for all-round usefulness for coast and inland cruising, that the Nahmeoka was built along practically the same lines. She is 95 ft. over all with a beam of 18 ft. 6 in. and draft of 3 ft. 3 in. The owner's quarters are aft, the motors are amidships and the galley and crew's quarters are forward.

A novelty in her arrangement is the location of the deck house aft. This has double doors in the after end and with the large unobstructed after deck, makes an excellent place for those on board to congregate in any weather.

The teak steersman's stand is also something of a novelty and is a most useful feature. The steering gear, binnacle, searchlight, telegraphs for the engines, emergency gong and bell pulls are all located at this point and besides in the starboard wing there is a Nicholson log and flag locker and in the port wing a chart locker with hinged support for a chart table. The lockers in the forward part of the stand are for running lights, etc. Besides this and equally important is the fact that it offers a splendid protection for the man at the wheel.

The quarters below deck are reached through an open stairway leading from the deck house to the main saloon, which extends the full width of the boat by 18 ft. fore and aft and is excellently lighted by four large windows on either side. A central passage runs from the main or dining saloon aft to the owner's stateroom, which may also be reached through a companionway aft. On the starboard side of this passageway are two staterooms and on the port side one large stateroom and a bathroom. From the main saloon a passage runs forward along the engine room to the galley and this passage is sufficiently wide to act as a pantry with lockers and shelves along its sides.

The power plant consists of two 100 h.p. Craig motors, in addition to which there is a complete electric light plant with auxiliary pumps for bilge and deck. Nahmeoka maintains a cruising speed of 13½ miles and can do 15 miles if pushed.



An open stairway in the deck house leads to the main saloon below, from which a passage leads aft to the living quarters.

Up the Hudson and Down Again.

(*Continued from page 9.*)

her 25 h.p. Sterling engine over 200 miles, but as we were out for a record, we figured it would be better to take less than that amount and stop for fuel both on the way up and way down. Therefore, we sent Hobo, a 30-footer, up the river 80 miles to Kingston with 50 gallons of gasoline in cans to be picked up by us on our way up. As Kingston came into view we could see Hobo waiting in mid-stream and as we approached, she got under way and as we came alongside, they passed us 30 gallons of fuel without delaying us a minute. We emptied the fuel into our tanks and then threw the cans overboard, to be picked up by Hobo, which was following a couple of miles astern by this time. The crew of Hobo, after picking up the cans, refilled them and passed them over to us again on our way down, when the plan worked out wonderfully well again.

Saugerties was passed at 7:38, just as the lighthouse began to glow and we were three minutes behind our schedule. This point was really the beginning of the difficult part of the river, and as we arrived just at sundown, we had time to get our bearings before dark. The inside of the stack made an excellent chart-case, so we rigged a small lantern that illuminated about 2 square feet of the chart without blinding the helmsman, who stands beside the stack and with the powerful electric searchlight, we were ready for almost anything. The wind, which had been blowing gently from the west since the start, with just force enough to make things comfortable, suddenly veered 6 or 8 points to the north and blew up half a gale, creating a temperature not far above that of an average winter's night and with it came considerable rise in sea, and while this did not bother us much, we learned later made going very uncomfortable and wet aboard the smaller craft.

We picked up Catskill Pier with our searchlight at 8:50, just on schedule time, and shortly after barely missed the mud behind Percy Reach Light, the most miserable apology for a government light I have ever seen. It was actually necesary to use the searchlight to find this mark. Hudson Light was passed at 9:25 and no trouble was experienced in passing through the narrow channels north of Athens. As we approached Coxsackie Island, several large passenger steamers were approaching from the north, so we decided to run between the islands to the west of the steamer channel. We got through all right but were dangerously near bottom once.

New Baltimore was passed at 11 o'clock, 10 minutes ahead of schedule, and from here to Albany, a 15-mile run, things were easy as the river was like a well-lighted street, it simply being necessary to keep the red lights to starboard and the white to port. Approaching the bridges at Albany the river was a myriad of red lights—we counted 41 ahead of us—but we picked out the correct turning pier and at 12:35 Mr. Leonardi, of the Regatta Committee, called to us as we turned that we were the leading boat.

We had been bucking tide for the last 100 miles, it holding us back about 1 1/10 miles per hour, and as we reached Albany at just low water, we had the pleasure of having the current against us again soon after the turn, but the effect of it was not as detrimental to our speed and comfort, for the wind was now behind us. We were now just enough ahead of our schedule to enable us to equal the record provided we maintained that margin, so we bent every effort to prevent any possible delay.

New Baltimore was passed at 2:05 and Coxsackie at 2:50 and at 3:36 Hudson was abeam. At 4 a.m. we passed Oeeyesee, one of the competing boats, high and dry on the extension of Main Street Catskill. If Capt. Smith had had wheels on his craft, we believe he would have been able to call in at the Village Hotel for breakfast.

One of the most interesting features of the return trip was the picking up of the other boats on their way up the river. From abeam of Campbell's Island, where our searchlight showed us Respite at 1:20 a.m., to New Baltimore, where we sighted the last boat, Mistake, at 2:21, we were kept busy figuring out how we stood in the race on corrected time compared with the ten boats that we passed, but the results did not console us greatly as the best place we could land was fourth, using the times made by the boats on the north-bound trip as a criterion.

At Saugerties, which we reached at 5:05 a.m., we began to pick up a favoring tide, the first of any to speak of since the start, and from here to Poughkeepsie we were able to

(*Continued on page 64.*)

Complete Synopsis of the Albany Race.

Prizes won by 1st Respite, 2nd Marinette, 3rd Kid II, 4th Narcissus. Tape Prize won by Thistle.

Viking Prizes won by - Respite - Thistle - Debut - Bathurst -

- Record made by Thistle - 1912 -

Shields won by Thistle, Arlington II, Mistake, Debut, Bathurst, Lillian II

- Class A. Cruisers -

Boat	W.L. Length	Wl. Beam	Make of Engine	No. of Cylinders	Bore and Stroke	Cycle	Horse Power	Rating	Elapsed Time Up Trip	Down Trip	Total	Time Allowance	Corrected Time	Owner
Respite	35.2	7.9	Relaco	4	4X6	4	16.76	38.88	16-06-10	14-35-20	30-41-30	6-03-18	24-38-12	V.C.Pedersen
Marinette	23.5	7.08	Ferro	3	5X5	2	19.23	40.3	16-21-00	15-26-36	31-47-36	5-10-35	26-37-01	H.B.Freeman
Kid II	23.82	7.0	Tuttle	2	4½X4	2	8.32	25.64	17-50-30	17-32-30	35-23-00	8-21-06	27-01-54	C.H.Dugliss Jr.
Narcissus	28.5	7.33	Palmer	2	5X6	4	13.1	38.16	18-00-48	15-36-35	33-37-08	6-31-40	27-05-29	G.Moore
Thistle	37.0	7.04	Sterling	4	5½X6	4	31.68	51.19	14-55-05	15-00-20	27-35-25	Scratch	27-35-25	J.H.Wallace
Arlington II	27.71	7.5	Tuttle	3	4½X4	2	12.48	38.5	17-43-08	17-00-37	34-43-45	6-17-58	28-25-47	J.Klipper
Mistake	28.21	7.42	Clifton	4	4X5	4	13.97	37.35	18-33-08	17-09-10	35-42-18	6-57-26	28-44-49	H.Gillis
Debut	30.83	7.0	20th Century	2	5½X7½	4	18.84	41.04	17-23-10	16-22-51	33-46-01	4-42-16	29-03-45	A.Mackpang
Bathurst	27.67	7.16	Palmer	3	5X6	4	19.65	43.2	17-45-09	16-00-49	33-45-58	5-32-12	30-13-46	R.F.Nolly
Lillian II	29.2	9.0	Palmer	3	5X6	2	23.79	41.4	18-47-12	16-34-03	34-51-15	4-31-49	30-19-26	L.Walters
Rosina	38.2	6.83	Merchant	4	5X6	4	26.2	45.1	17-04-50	-	Did not finish			H.Nelson
Oeyesee	34.9	8.5	Sterling	4	4½X5½	4	21.64	44.1	-	-	-	-	-	J.H.Smith
Louise	29.1	6.83	Mianus	2	5½X6	2	19.2	43.38	-	-	-	-	-	H.Mogler
Ivanhoe	24.33	5.46	Ferro	2	4¼X4½	2	7.86	38.88	-	-	-	-	-	R.G.Norris
Ovida	24.34	5.33	Wiener	1	5½X6	2	8.75	37.8	-	-	-	-	-	F.E.Menke

1st Prize won by Bunk III. Tape Prize won by Bunk III.

- Class B -- Open Boats -

Boat														
Bunk III	20.0	4.33	Watertown	2	3¾X3½	2	5.42	37.44	18-35-08	14-47-34	29-22-42	6-00-20	23-22-22	C.Firth
Merlin	27.4	4.75	Reynolds	4	3½X4½	4	9.42	48.6	Did not finish - Scratch			-		W.B.Selden
Katherine II	17.6	4.25	Ferro	1	3¾X3½	2	1.9	23.22	-	-	-	-	-	W.Heinig

Lloyd's Register for 1912.

SOME very interesting figures in regard to the steady growth of motor boating are disclosed by Lloyd's Register of American Yachts for 1912. The total number of yachts registered this year is 3,533, about 60 per cent. of which are propelled by steam or by gasoline engines. By comparing the lists of yachts from year to year, it can be easily seen that the additions to the sailing division are comparatively unimportant when considered with the rapid increase in the number of gasoline-propelled craft, especially of the raised-deck type, measuring from 28 to 35 feet in length. This class of motor boat is rapidly outnumbering all others in the older yachting centers on the Atlantic Coast and is rapidly making new converts to the sport on the Western lakes and rivers, to say nothing of the steadily increasing fleet of these handy little vessels found in Florida and other Southern waters. And not only in the East is their popularity well established, for numbers of them can be found on the Pacific Coast, especially in the Puget Sound region.

The roll of yacht clubs now included in the register numbers 578, besides 39 racing associations and other organizations having to do directly with yachting. These clubs are distributed along the Atlantic Coast from Cape Breton, N. S., to Jamaica in the West Indies, while on inland waters they cover every lake and river of any importance, and on the Pacific Coast they form a continuous chain from San Diego in the South to Nelson, B. C., close to the Alaskan border. All of these clubs are found in the Register with a list of their officers and their burgees are shown in color to the number of nearly 500, and the private signals of yachtsmen, numbering nearly 2,000, are also given in color.

The use of a yacht register was at one time limited largely to the big steam yacht or gasoline cruiser, but the book now-a-days is compiled with a view to the wants of all classes of yachtsmen and it is the owner of the small cruiser who will take the most interest in identifying the many boats of his own class which he encounters when off cruising and who is most dependent upon the hospitality of the yacht clubs. In Lloyd's Register he can learn from the private signal the name of the owner of a yacht as well as her dimensions and other particulars concerning her. What is perhaps even more important, he can find in this book the location of each club, its officers and other valuable information in regard to it. The book is published in two styles, one in handsome blue cloth with gilt edges for the club library or the cabin of the 90 or 100-footer and the other in plain canvas binding.

Among the Clubs

The Ocean City Yacht Club, Ocean City, N. J., during the opening regatta of the South Jersey Yacht Racing Association on June 29th.

The Maryland Motor Boat Club, Baltimore, Md., held its 200-mile race to Point No Point and return on June 29th and 30th. The last boat to leave Baltimore was Marguerite II, owned by A. B. Cartledge, of the Keystone Yacht Club of Philadelphia; but in spite of her late start she was the first to cross the finish line and captured the cup offered for class A. The Irma G., owned by L. L. Gardner, of the Maryland Motor Boat Club, won in class B, and Class C went to Usona, owned by H. G. Leland, of the same organization. The race was run on a handicap basis and the course was from the clubhouse, 100 miles down the Chesapeake to Point No Point and return. The smallest boat, the Usona, was started at 2 o'clock on the afternoon of the 29th and the largest entry, the Marguerite, did not get away until after half-past six. This made a most uninteresting start and there was very little interest at the finish, although the handicapping was about as close as could have been figured. From the moment Marguerite got under way, she began to log off the miles at a rate that soon overhauled her rivals and by midnight she had the satisfaction of having left five of the fleet astern with only Valiant, Irma G and Amina ahead. The weather was perfect with bright moonlight and no wind or sea. By daybreak she had the two leading boats in sight, and at eight bells had almost overtaken them. At this hour a squall came down the bay, and while it did not affect the leading boats, it gave the little fellows some exciting minutes, especially as the heavy rain shut out the shore line. The only boat in the fleet to be seriously affected was The Boss, which ran into harbor and laid by for a couple of hours. A summary of the race is given below:

	Start	Finish
Class A.	June 29th.	June 30th.
Marguerite II, A. B. Cartledge	6.40 P.M.	9.18 A.M.
Valiant, L. S. Meyer.....	6.14 "	11.54 "
Electra, H. A. Shepherd..	6.34 "	2.19 P.M.
Class B.		
Irma G, L. L. Gardner.....	4.17 P.M.	11.52 A.M.
Amina, A. S. Zell.....	5.48 "	11.57 "
Hap, L. M. Sprague.....	6.02 "	2.10 P.M.
Class C.		
Usona, H. G. Leland.....	2.00 P.M.	1.43 P.M.
Virginia II, R. W. Thompson	2.52 "	1.46 "
The Boss, M. D. Callis.....	2.08 "	5.46 "

The Chicago Carnival Program.

The plans for the aquatic carnival and naval pageant to be held at Chicago, Ill., from August 10th to 17th, have matured rapidly and definite dates have been assigned for practically all the more important events. On Saturday, the 10th, will come the first International yacht race for the championship of North America. The contending boats are the Michicago, built by a syndicate formed by members of the Chicago Yacht Club, and the Patricia, owned by Norman Gooderham, of the Royal Canadian Yacht Club. This event will be sailed at two o'clock in the afternoon and immediately following, there will be a reception for the visiting motor boatmen and yachtsmen. On Saturday night and Sunday will take place some of the big features of the water carnival, but the motor boat racing will not begin until Monday, the 12th, when the first heats for the forty, thirty-two, twenty-six and twenty-foot classes will be run off. These races will continue on Tuesday and Wednesday simultaneously with the races for the International yachting championships. On the night of Wednesday, the 14th, the Venetian Night is scheduled, which is to be one of the important features of the carnival and on Thursday, the 15th, after the races for the forty, thirty-two, twenty-six and twenty-foot classes are completed, will come the free-for-all races for the championship of America and the Wrigley trophy, besides the first contest for the Sir Thomas Lipton cup. On Friday, the 16th, will be held the 120-mile race to St. Joseph, Mich., and return for speed boats and this contest will be used to demonstrate the reliability of the hydroplane type in any kind of water. In the evening, a naval sham battle will take place in which men and ships of the United States navy will participate. The last day of the carnival will witness the free-for-all mile race, in which it is expected that the boats will try for the prize offered by Commodore Wm. H. Thompson for the first boat to make over fifty miles an hour.

Spindrift, of the Albany Yacht Club, winner of the Tappan Zee Yacht Club race from Grand View-on-Hudson to Hudson, N. Y., and return. She is powered with a Ralaco motor.

The Tappan Zee Yacht Club, Grand View-on-Hudson, N. Y., held an interesting regatta on July 4th. The day was hot and hazy in the early morning, but toward noon a good breeze sprang up which by afternoon had increased to considerable strength from the southeast, so that the cruisers had a head wind on one of the legs of their course and the hydroplanes had to run their races inside the shelter of Piermont Pier. The open motor boats raced in the morning over a 10-mile course, but the speed boats, instead of running out toward Tarrytown Lighthouse, then south to the buoy off Piermont Pier, back to the clubhouse and around again like the other power craft, were given a straightaway and return course north of the pier, which provided some shelter from the strong southeast wind. Sea Robin won the open boat class with an elapsed and corrected time of 43.40, with Gray Hare, of the Hudson Boat Club, second; Eastern Star, of the New York Motor Boat Club, third, and Undine, of the Tappan Zee Yacht Club, fourth. The race was well run, although, with the exception of Eastern Star and Undine which crossed the line about a minute apart, the boats were pretty well strung out. The cruiser class was started at about 2 o'clock in the afternoon and the race was an interesting one, with many of the boats closely bunched. There was some misunderstanding as to the equipment which the boats were required to carry, and Respite, of the Columbia Yacht Club, was the only cruiser which carried her dinghy aboard and thus covered the course with her full equipment. In spite of this slight handicap,

Silverheels, the 45-footer owned by Past Commodore C. A. Criqui, of the Buffalo Motor Boat Club. She is driven by a 45-65 h.p. Sterling and makes 12 miles per hour.

she won the event with an elapsed time of 1.10.20 corrected to 58.23. Spindrift, of the Albany Yacht Club, was second; Virginia, of the Colonial Yacht Club, third, and Grace, of the Tappan Zee Yacht Club, fourth. Kid II, of the New York Motor Boat Club, was disqualified, and Shadow II and Alphia, of the Tappan Zee Club, did not finish. The other boats finishing were Arlington II, N. Y. M. B. C.; Marie Louise, Shattemuc Yacht Club, and Niaid, Yonkers Yacht Club. The speed boat races were started about half an hour later. Lord Vim covered the ten-mile course in 45.07, corrected to 44.09, winning the race, with Question second. Tiny Tad did not finish. All the entrants in this class were from the New York Motor Boat Club. At 5 o'clock a free-for-all race was run over a 5-mile course, which was won by Pronto, of the Tappan Zee Club, elapsed time 16.40; with Lord Vim, second, and Question, third. The day was closed by a dance at the clubhouse. On June 22nd and 23rd a race was held under the auspices of the club from Grand View to Hudson, N. Y., and return. The competing boats were: Respite, of the Columbia Yacht Club; Spindrift, of the Albany Yacht Club; Tuscarora, Grace and Shadow II, of the Tappan Zee Club. The race was won by Spindrift, after a very successful and speedy run, with Tuscarora, second by time allowance, and Shadow II, third. Grace finished two hours behind the winner, having run aground once or twice, and Respite ran on the soft beach at Rogers Island and in the end had to be towed into Poughkeepsie.

The National Yacht Club, of Bensonhurst, L. I., has decided to postpone its annual Cape May race for motor boats until later in the season, owing to the fact that many of the boats are away cruising. The race was to have started on July 4th.

The Delaware River Yacht Racing Association engineered one of the most successful contests ever run on the river on June 21st and 22nd, when the long distance race to Overfalls lightship was held. The features of the event were the number of entries, the number of boats finishing and the closeness of the contest. Sixteen cabin cruisers were entered and the course was from the pier in front of the Keystone Yacht Club at Tacony, down the river to Overfalls lightship off Delaware breakwater, and return, a distance of 196 nautical miles. This course started the racers on one of the prettiest stretches of river water about Philadelphia, took them down through the busy harbor in front of the city, thence down the river with its many turns and out into the bay, which, although usually one of the finest of sailing areas, can at times develop a choppy sea that will try the skill of the most experienced veteran in the motor boat game. The start was made in the order of handicaps with the idea of making the finish exciting and in this case, the results fully justified the system. Chelwood, the first boat in the 40-foot-and-under class, started at 5.30 p.m. on Friday and the others followed until the scratch boat, Clare III, crossed the line at 10.11.38 p.m. Of the 13 entries in this class, only one, Justina, failed to finish within the prescribed time of 36 hours, but Budd came in so late that no official time was taken. In class B, boats over 40 feet, there were three entries. The winner was Marguerite II, owned by A. B. Cartledge, of the Keystone Yacht Club, and when she crossed the finishing line on Saturday afternoon, her owner and crew were given an ovation and were afterwards dined and fêted until late into the night. Intense interest was evident in the results of the smaller boat class because of the presence of last year's trophy winners, as well as several new boats. The winner in this class was Chelwood, the 40-footer of Rufus K. Lennig, of the Yachtsmen's Club of Philadelphia, with Haji, of the Camden Motor Boat Club, second. Below is given a summary of the contesting boats, their owners and the clubs to which each belonged, together with their elapsed and corrected time.

Class A—Boats 40 feet and under.

Boat.	Owner.	Club.	Rating.	Elapsed Time.	Corrected Time.
Chelwood	R. K. Lennig	Yachtsmen's Club	39.06	24.15.35	19.33.57
Pickanniny	Bell & Taylor	Camden M. B. C.	39.51	24.40.39	20.11.08
Adois		Wilmington Y. C.	40.00	26.07.25	22.03.04
Eugenia	Dr. E. Swayne	Flat Rock M. B. C.	40.08	24.52.43	20.41.17
Marie W.	C. Wood	Camden M. B. C.	41.90	24.38.32	21.17.57
Haji	Com. H. C. Dudley	Camden M. B. C.	43.15	22.43.19	19.57.04
Tillie A.	A. Ahlers	Wissinoming Y. C.	43.29	23.28.30	20.44.42
Hyacinth	J. Morgan	Chester	45.25	24.41.15	22.55.52
Isabella II.	B. Hay	Camden M. B. C.	48.04	25.47.48	24.51.22
Justina	H. English	Keystone Y. C.	48.18	Did not finish	
Budd	J. Nelson	Flat Rock M. B. C.	48.88	Time not taken	
Casino	W. Erb	Columbia Y. C.	49.50	20.49.40	20.23.14
Clare III.	Dr. Drexler	Camden M. B. C.	50.86	19.13.56	19.13.56

Class B—Boats over 40 feet.

Mary C.	N. McWilliams	Camden M. B. C.	43.74	23.22.45	20.22.20
Kathemma	W. Smith	Camden M. B. C.	46.26	22.14.03	20.14.53
Marguerite II.	A. B. Cartledge	Keystone Y. C.	52.38	19.13.56	19.13.56

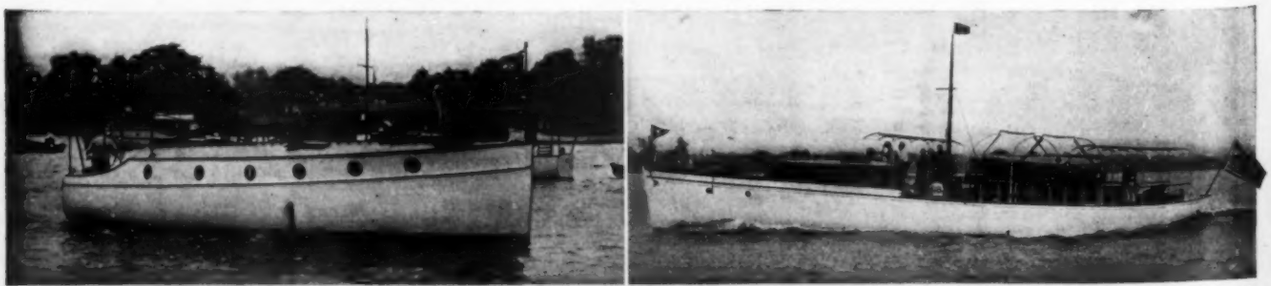
The Edgewater Motor Boat Club, of Edgewater, N. J., held its third race for the Probst cup on July 4th. The boats were sent six times around the triangular club course, making a distance of approximately 15 miles. The boats raced in one class and were handicapped on a basis of the actual performance of each boat. The Laura V. R., owned by Commodore Roberts, came in first with Amy, owned by W. Alexander, second, and W. Brown's Minerva, third. There was a fresh breeze blowing which sent the spray flying over the racers and made a good deal of trouble for the open boats. As a matter of fact, Amy was the only boat in this class to finish at all. The trophy has to be won twice by the same boat to become the permanent possession of the skipper. Previous winners of the cup have been The Tyke and Amy.

The Pistakee Yacht Club, Pistakee Lake, Ill., held a free-for-all motor boat race on July 4th which was won by Sentinel, owned by O. C. and E. M. Miller. The course was 7 miles and was covered by the winning boat in 18 minutes and 20 seconds. Islander, owned by O. C. and E. M. Miller, took second place; Three Boys, owned by S. Blodgett, of Chicago, was third, and Eda, owned by Mrs. Paul Gertin, came in fourth.

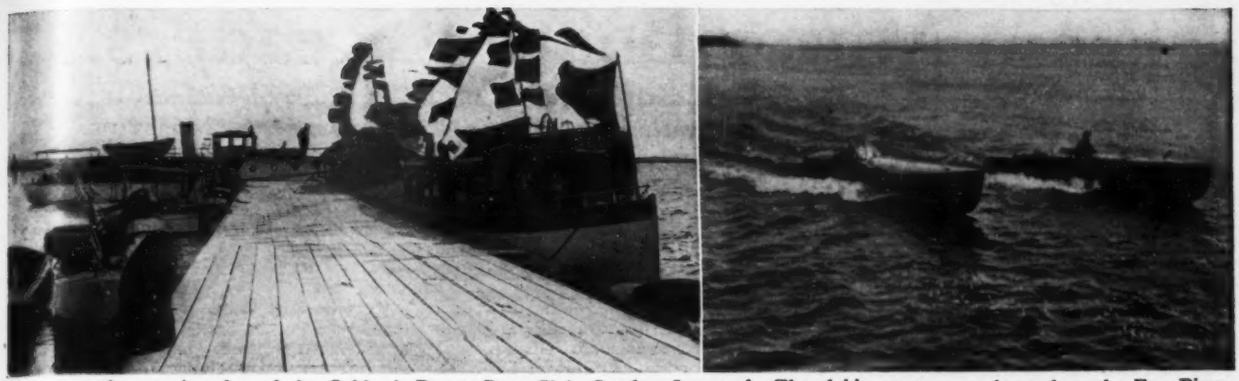
The Utica Motor Boat Club, Utica, N. Y., has planned a number of interesting events for the remainder of the season. On August 4th there will be a club run to Higginsville Cut and a similar run to Fort Bull on the 10th. On the 25th there will be a run to Murphy's Landing, with racing, and on the 31st the destination will be Green Lake for a stay over Labor Day, with racing to add interest to the event. The last run on the list will be held on September 22nd with Stop No. 6 as an objective point, where a clam bake will be held. All runs will start from the club's quarters.

The Boston Yacht Club's motor boat division completed its second cruise at Marblehead on the 30th of June. The fleet left Marblehead Saturday afternoon in regular formation, receiving instructions by signal from the flagship. Sunday morning the squadron proceeded in single column to Annisquam, returning in the afternoon to Gloucester and from there to Marblehead. Thirteen boats participated in the cruise.

The South Shore Yacht Club, of Freeport, L. I., held motor boat races on July 4th, in which cabin boats, open boats, displacement speed boats and hydroplanes competed. The hydroplane class, in which there were three starters, was won by Jack Boyden, named for its owner, which covered the 35-mile course in one hour and twelve minutes. There were twelve entries in the cabin boat class, which went to La Boheme, with Old Fashioned, second. In the race for open boats, the winner was Commodore, Rothsay taking second place, and All Wool, third. Marie II won the event



Winners of the long-distance race from the Keystone Yacht Club, Tacony, Pa., to Overfalls lightship and return, June 21st and 22nd. On the left is Chelwood, of the Yachtsmen's Club of Philadelphia, which was awarded first place in the "40-foot and under" class. She has a Hall engine. On the right, Marguerite II, of the Keystone Yacht Club, which was the winner in the class for boats over 40 feet.



Scenes on the opening day of the Oshkosh Power Boat Club, Sunday, June 2nd. The club's quarters are located on the Fox River, about eight miles from Oshkosh, Wis.

for displacement speed boats, the second place going to Mildred V.

The Houston Launch Club, Houston, Texas, has decided not to hold its annual regatta this year until the 22nd, 23rd and 24th of August. It was first intended to set the regatta dates for some time in June and later July 4th was suggested, but these dates did not find general favor and so it was decided to postpone the important event until this month. One advantage which the late date of the regatta will bring, will be the entry of several fast new speed boats, which are now in course of construction.

The New York Motor Boat Club held its annual race to Tarrytown Light and return, a distance of 32 nautical miles, on the 16th of June. All the boats raced in one class and were timed over one particular mile which was unknown to the contestants, in addition to the total time made from the start to the finish. The speeds over this mile and over the entire course were computed and the boats were penalized one point for every one-hundredth of a mile per hour that the two speeds differed. A penalty of 10 points was given for each 30 seconds the boats were late in crossing the starting line and 25 points for every engine stop. The race was won by Eastern Star, owned by E. L. Finch, which covered the course in 4.22 hours. Her speed for the entire run averaged 7.58 nautical miles per hour while she covered the observation mile at a rate of 8 miles per hour, thus earning a penalty of 42 points. Arlington, owned by J. Clipper, was second with a total penalty of 48.1 points; W. B. Selden's Merlin, third, with 48.5 points penalization; R. F. Swayze's Alma, fourth, with 48.8 points; and C. F. Chapman's Consort, fifth, with 60 points. W. Lattimer's Mon Plaisir and F. S. Menke's Ouida also finished. Arlington was given 20 points for late starting and Consort 25 points for an engine stop. All the other penalties were given for differences in speed over the observed mile.

The Bayside Yacht Club, of Bayside, L. I., will hold its annual club cruise from August 8th to 11th. This will be the fourth event of this kind and as the club fleet has grown considerably during the past year, the cruise should be an even greater success than in 1911, when a large fleet turned out for a good time. The entertainment committee has been fully alive to its duties and has provided some very enjoyable entertainments through July. The usual Saturday night dances were held on the 6th, 13th and 27th, while on the evening of the 4th the annual celebration took place, the features of which were an illumination of the bay and fleet, a fireworks display on the pier and a "red, white and blue" dance, at which the ladies appeared in appropriate costumes.

The Yacht Racing Association of Jamaica Bay, L. I., held the first of its series of races on the ocean and the Beach Channel for motor boats and sailing craft. The squadron was divided into two separate fleets, of which the one made up of larger boats sailed over a course that took the racers out on the Atlantic, while the smaller craft remained in Jamaica Bay, starting and finishing off the Rockaway Point Yacht Club. In the ocean division, only two entered in the cruising cabin motor boat class, of which Lester, owned by Dr. J. R. Hodgson, was the only one to finish. Her elapsed time was 1.47.12. In the half-cabin motor boat class, Brisk, owned by J. Yenzer, was the only entry. Her time was 1.49.56. The course for both classes covered a distance of 14 miles. In the Beach Channel division, the five entries in the open power boat class were sent over a 10-mile course. Bill Morrison, owned by H. Hamm, was the winner with an elapsed time of 1.30.31. Second place went to Ella and Elsie, owned by A. McDonald; with Smarty, third; Thistle, fourth, and Mildred S., fifth. The course for semi-speed boats was also 10 miles long. Anna Grace, owned by A. Clyde, was the winner in this class, with an elapsed time of 1.10.30, with Valliant II, second, and So Long, third.

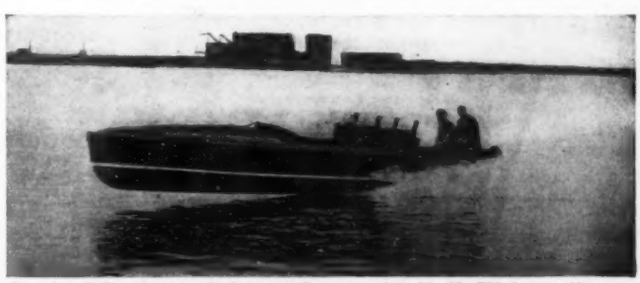
The Hudson River Yacht Racing Association will hold an association cruise August 2nd, 3rd and 4th. The squadrons of the Columbia Yacht Club, New York Motor Boat Club, Yonkers Yacht Club, Tappan Zee Club, Tarrytown Boat Club and Tarrytown Yacht Club, will rendezvous at the anchorage of the Tappan Zee organization at Grand View on the 2nd. On the 3rd, the fleet will get under way at 10 a.m. and will be joined at Ossining, Peekskill and Newburgh by the squadrons of the Shattemuc, Highland and Newburgh clubs respectively. At Milton, the fleet will be met by the squadrons of the Poughkeepsie and Rondout clubs and escorted to Poughkeepsie, where those taking part in the cruise will be the guests of the Poughkeepsie Yacht Club. On the 4th, the entire fleet will return down the river.

The Genesee Power Boat Association, Rochester, N. Y., held its second series of races for the McClurg and DeLong trophies on June 29th, in which 12 boats were entered and only one failed to finish. The race was won by the boat owned by Peters Bros., which covered the 8-mile course in 44.5 minutes, with Idlewild second on corrected time, and Gray Don, third. The day was nearly perfect for motor boat racing, with very little sea or wind. The course began at the R. A. C. dock and extended four miles up the river, and was covered twice by the contestants.

The Arcanum Yacht Club, of Brooklyn, N. Y., held a regatta on July 4th for motor boats on Gravesend Bay under the "bang and go back" system of handicapping. The contest was won by Rear-Commodore McCaully's Carlotta II, with Commodore Graff's Adelaide taking second place and Alva, owned by Petry and Fink, third.

The Newburgh Yacht Club, Newburgh, N. Y., held a club run to Stony Point, followed by a shore dinner on the 4th of July. The fleet making the trip consisted of 10 boats carrying about 75 people, including members and their families. The club is in a very flourishing condition, having a membership of about 130 and a squadron of 40 boats exclusive of canoes, rowboats and small sailing craft. During the year, three large cruisers have been added to the club fleet, one, the handsome 32-footer Madeleine, being the property of John B. Corwin, the mayor of Newburgh. Among the club craft is the speed boat, Consuelo, owned by Messrs. Abreu and Jova (instead of H. G. Pratt, as was erroneously stated in the July issue), which made the 15-mile run between Newburgh and Poughkeepsie on Memorial Day, carrying Mayor Gaynor's message to Albany over that section of the river, in 43 minutes. It has become quite a custom for club members to get together on Saturday and make a run up or down the river

(*Continued on page* 68.)



Courier III, winner of the match race with U. U. IV for a distance of 20 miles over the Buffalo Launch Club course on the Niagara river. She has a 240 h.p. Sterling engine.

Contestants in the hydroplane race at Ocean City, N. J., held on June 29th, under the auspices of the South Jersey Yacht Racing Association. The race was won by Slick (right), Chelsea breaking her propeller before the finish.

From Motor Boating Readers.

A Department for the Exchange of Ideas and the Discussion of Questions of General Interest. Editorial Opinion on a Number of Questions Submitted by Readers of the Magazine.

MoToR BoatinG's columns are open to its readers, not only for asking questions, but for placing before other readers ideas, results of experience, opinions, etc., that should be interesting or helpful to them; but the editor will not, of course, be responsible for any opinions expressed or statements made in such communications. The name and address of the writer must necessarily be given in every case to make an answer by mail possible (no anonymous contributions will be considered for publication), but names will be omitted in publishing the letters and answers where desired, in which case it is desirable that initials or other distinguishing signature be appended. Through the correspondence department readers of the magazine may be of direct aid to one another in solving the problems of motor boating.

Back Firing at Low Speeds.

To the Editor of MoToR BoatinG, *Sir:*—

I would like a little of your advice. My trouble is with a two-cycle, two-cylinder, 10 h.p. engine using a 1½-inch carbureter. When running at full speed with the load on, the service is all that could be desired. But we would like to be able to throttle down to low speed with the load on, and this we cannot do under any consideration as she will backfire a few times and then stall. We can, however, cut the air down as well as the spark and the engine will run at an exceedingly low speed with the clutch out. The spark is controlled as is the air by a quadrant at the steering wheel. If you can give me any advice as to what to do in order to run at low speed with the engine throttled down, I would be greatly indebted to you for the same.

P. T. C., Jamaica Plain, Mass.

[As the proportion of air to gasoline in the mixture is very large and as there is considerable more friction generated by the passage of this air through the carbureter at high speeds, than at low speeds, the air valve must be opened a relatively larger amount when the engine is at speed than when running slow, in order to maintain the same proportions of gasoline and air in the mixture, provided the amount of gasoline is constant. The result is: when the engine is running slow and there is no air friction present, the mixture is relatively weak, causing the engine to back-fire when throttled down. One way to prevent this would be to open the gasoline needle valve a slightly greater amount or close the air valve when slowing down, which will make a resultant richer mixture which will fire before the exhaust ports open. By the air valves we do not mean the valve that controls the entrance of the entire mixture to the cylinder, but simply that governing the supply of air only. Probably the more effective way to take care of it is to slightly open the gasoline valve, which, although not a convenient method, should produce the desired results.]

The Result.

To the Editor of MoToR BoatinG, *Sir:*—

I received your letter and did as you instructed me to do. I am now able to run on low speed with the load on the engine. I am very grateful to you in helping me in the matter. Your suggestion was certainly a success. At high speed the engine turns up 780 r.p.m and at low 102 r.p.m tested with a speed indicator. All it needed, as you said, was a richer mixture at low speed and you were right. I wrote to two authorities but they could not explain matters. Thanking you for helping me over a rough wave, I am,

P. T. C., Jamaica Plain, Mass.

Propeller for a 33-Footer.

To the Editor of MoToR BoatinG, *Sir:*—

Having been a subscriber to your magazine for the last couple of years and a constant reader of same, I have received much valuable information from your articles and especially from your "Answers to Readers." I am building a boat to be used on our rivers; it is of the Torpedo Stern type, 33 feet long, 6 feet 6 inch beam, with a displacement of about 2,500 lbs. The engine I expect to install is a four-cycle, four-cylinder motor with 4¼-inch bore and 4¾-inch stroke, and supposed to develop 30 to 45 h.p. at 900 to 1,200 r.p.m. This is as much information as it is possible for me to obtain at this time. From the above information, can you advise me as to the size and pitch propeller I should use to get the best results? Can you give me any idea of the speed I should get with this outfit?

E. E. E., Pittsburgh, Pa.

[We believe the best wheel for the boat described above will be one of 18 inches diameter by 24 inches pitch and having three elliptical blades. Turning this wheel at 1,000 r.p.m. a speed of between 15 and 16 miles per hour should be obtained.]

Handicapping for a Regatta.

To the Editor of MoToR BoatinG, *Sir:*—

We are going to give a water carnival and boat races at St. Charles under the auspices of the St. Charles Boat Club, and would like your advice on the handicap motor boat race. We have motor canoes and about 50 launches of different sizes and horsepower, but we know no rule by which to handicap evenly all the boats in this 6-mile race. Last year we timed them on a trial run but the timing turned out unsatisfactorily as the boats made better time in the race. Trusting you will give us the benefit of your knowledge on this subject, I remain,

F. S., St Charles, Ill.

[We must hold up our hands as we have been trying to work out a satisfactory method for years, and if we had the information we would gladly give it to you, but regret that we have not. We are certain that there is no such method in existence that will eliminate all the personal elements from a motor boat race.

The American Power Boat Association Rules probably produce the most satisfactory results among boats of your type, although these are not perfect. If you are not familiar with these rules, a copy of them may be obtained from Mr. Morris M. Whitaker, Nyack, N. Y., secretary of the association. If your regatta is to be more or less informal or a general jollification, we would suggest such things as a relay race, with four or five boats in each team, sealed order race, lemon race, slow race, signal race, etc. The latter race works out very well, provided you enforce strict penalties for boats that try to jockey with the rules. The scheme is to start the boats off together over a known course, the faster boats naturally taking the lead and the slower ones dropping back. At a signal from the committee boat or on shore, usually given by a cannon or aerial bomb, the boats will turn in their tracks and the first one to reach the finish line is declared the winner. You will see that this is a sort of an automatic handicapping, as all the boats are at varying distance from the starting line, according to speed made after the starting signal. Of course, with a race of this kind, it would be necessary that the boats run full speed all the time and over a straight course, and boats making the return trip after the turning signal in less time than the out-going trip, should be disqualified.

The lemon race consists of a boat taking a quantity of lemons, say 100 more or less, starting out ahead of the fleet, which follow not far astern. The lemons are thrown overboard, to be picked up by the following boats and the one getting the largest number of lemons is declared the winner. This might be varied to some extent by painting numbers on the lemons and having the sum of the numbers on the lemons picked up by each boat decide the winner.]

Proper Weight Fly Wheel

To the Editor of MoToR BoatinG, *Sir:*—

I am building a single-cylinder 4-cycle gasoline engine, 3¾-inch bore and 4½-inch stroke and would like your opinion as to the weight of flywheel. I figure that 50 lbs. is about correct, although I do not know positively. This motor will run in a double run of ball bearings throughout with exception of connecting rod, which will be white metal. Further, what size propeller would you advise me to use for a flat-bottom boat, 14 feet 6 inches by 3 feet 8 inches, drawing about 2 inches of water with the above motor. I am trying to get all the speed out of the layout I can and that is my reason for building the motor with ball bearings. What speed, to your estimation, could I expect of this power. Understand, the boat is flat bottom and draws about 2 inches of water midship. What horsepower would the above motor develop.

A. E. S., Toledo, O.

[We think you are designing the flywheel for your engine a trifle too light, although you did not give us any idea as to whether your engine was to be of the light, medium or heavy-weight type, or the revolutions per minute it was designed for. Based on an average engine of the same bore and stroke as yours, the flywheel should weigh between 65 and 75 lbs. Furthermore, it is impossible to give you any idea as to the proper propeller size, speed of the boat or horsepower of your engine without knowing the revolutions, which, of course, depend to a large extent upon the size and position of the ports, weight of moving parts, etc. The power of your engine might vary anywhere from 2½ to 7 horsepower, which you will see makes even a good guess as to the boat's speed impossible.]

Propeller for Flat Bottom Boat.

To the Editor of MoToR BoatinG, *Sir:*—

As a subscriber, I would like to ask the following questions: What size and pitch of propeller is best suited to following engine: bore, 5 inches; stroke, 6 inches; speed, 500 r.p.m., 4-cycle. Also, what speed may I expect from boat 23 feet long, 5 feet beam, flat bottom, powered with above engine.

H. J. T., Bowling Green, Ky.

[We would suggest as the propeller for your boat and engine the following: propeller having a diameter of 18 inches, a pitch of 20 inches and three elliptical-shaped blades. The speed of your boat should be about 6½ miles per hour, as near as we can estimate on the data given. This may seem somewhat low to you, but flat-bottom boats are much harder to drive with small powers than the ordinary round-bottom boats. Of course, this does not hold true, as the power is materially increased.]

Route from Cape Charles to Long Island Sound.

To the Editor of MoToR BoatinG, *Sir:*—

Under her own power I am thinking of bringing to Long Island Sound a shallow draft power houseboat. My home for the last couple of years has been on the waters of Broadwater Bay, an arm of the Atlantic just above Cape Charles, Va. Her length is 40 feet overall, the beam being about 12 feet. I am under the impression that it is possible to make this journey by an inland route practically the entire distance, by starting the trip via Chesapeake Bay. Will you kindly inform me where I can get a fairly accurate description of the most practicable inland route for this proposed trip.

G. D. B., Rye, N. Y.

[It is perfectly practicable to bring your houseboat from Broadwater Bay to Long Island Sound via the inland route all of the way. The course will be up Chesapeake Bay to Back Creek (a tributary of the Elk River at the northeastern extremity of the Bay) to the Delaware and Chesapeake Canal. This canal is about 15 miles in length and will take you to Delaware City. Then the Delaware River will be entered and followed north to Bordentown, a distance of about 65 miles, to the entrance of the Delaware and Raritan Canal. The canal is about 45 miles long with 13 locks and its northern terminus is at New Brunswick, N. J., where the Raritan River is entered and followed to New York Bay and the East River to Long Island Sound. The following government charts, 116, 120, 125, 126, 131, 132, 133, 134, 135, 136, 375 give you all the necessary information to make the trip. The necessary permits may be obtained at the entrance of the canals, no advance application being necessary.]

Adding Step to Bottom of Boat.

To the Editor of MoToR BoatinG, *Sir:*—

Could you kindly advise me as to the propeller needed for the following boat: Length, 26 feet overall; width, 5 feet; weight, 1,200; V-bottom forward to flat, about two-thirds length aft. Engine is a 40-50 A-B, turning 1,250 r.p.m., installed forward. Former engine of 30 h.p. gave 20 miles per hour. Please advise wheel best suited and speed. Also, would a step attached to the boat have any material affect upon the speed and if so how and where should it be placed.

H. D. S., Schuylerville, N. Y.

[We believe the proper wheel for your 26 foot V-bottom boat equipped with a 40-50 h.p. engine turning at 1,250 r.p.m., would be one having a diameter of 18 inches, a pitch of 26 inches and having three elliptical-shaped blades. You should get between 23 and 24 miles per hour with this outfit, provided your former 30 h.p. gave you 20 miles per hour.

We would not advise adding steps to the bottom of your boat but an increase in speed of from 1 to 2 miles per hour might be obtained by adding planes about 3 inches wide to the sides of the boat in such a way as to make her plane more. The exact position of these planes can only be determined by trying the boat out without them and noting her waterline when under way and then adding the planes so as to force the forward part of the hull out farther. They may be had in the shape of angle-irons screwed or bolted to the sides of the hull and several feet long, but, of course, the forward end should be higher than the after end. Several of these auxiliary planes may be used to advantage on each side, but, of course, should not overlap each other.]

Waterproofing Canvas.

To the Editor of MoToR BoatinG, *Sir:*—

Some time ago you published a formula for waterproofing canvas. I remember reading it but I can't find the copy, high or low. Would you kindly send me the process. I wish to treat an "overall" cover for an 18-foot boat. I would like this as soon as possible and would appreciate the favor.

D. S., Dayton, O.

[We believe that one of the simplest and most effective methods of waterproofing canvas is to pour about 2 lbs. of melted paraffin into a gallon of gasoline, which has been previously warmed by placing the vessel containing the gasoline in hot water. The mixture should be painted on to the canvas like ordinary paint and the gasoline will soon evaporate, leaving the canvas saturated with the paraffin which will be effective and lasting.]

What Flags to Fly.

To the Editor of MoToR BoatinG, *Sir:*—

As a subscriber to your very interesting journal, I am writing to request that you tell me how and where and what kind of flags should be flown from the mast and bow of my boat. She is 30 feet long, has one mast with yard-arm and I would like to know what flags to fly and where to fly them. I want to fly my yacht club flag, private signal flag, name flag, my state flag, or some fancy flag. Of course, the yacht ensign I always put over the stern. Is it proper to always fly the Union Jack at the bow? Long flag with name at mast head, club flag at starboard yard, private signal flag on port yard? What size should these flags be for 30-foot raised deck cruiser?

T. W., Washington, D. C.

[On a boat of your type, that is a motor boat having bow and stern staffs, and signal mast with yard, the club pennant should be flown from the bow-staff, the owner's private signal from the masthead and, of course, the yacht ensign from the stern-staff. If you are a flag officer of a yacht club, you should fly your officer's flag instead of your private signal from the signal mast. This should be flown night and day whether you are aboard or not.

From the starboard spreader fly your absent, meal or guest flag, and from your port spreader the crew's meal flag only. All except the former of these should be flown when at anchor only. The absent flag should be kept flying from daylight until dark during the absence of the owner from the yacht, whether she is under way or at anchor. A Union Jack may be flown from the bow-staff in place of the club pennant on Sundays and national holidays when at anchor only. When dressing ship on holidays and during racing events and other gala occasions, the flags of the International code may be used, arranged in strings from the masthead to the bow, stern and other points on deck.

Flags having names spelled out on them should never be flown and on no occasion should more than one flag be flown from the same hoist except when dressing ship, as explained above. There is one exception to this rule, however: it is permissable to fly the church pennant over the ensign when at anchor during Divine service, but this is hardly applicable to a boat the size of yours.

The club flag should be about 20″ x 30″, the private signal 18″ x 24″, the ensign 30″ x 48″ and the International signals no larger than 18″ x 18″.]

Rating Racing Boats.

To the Editor of MoToR BoatinG, *Sir:*—

Having been appointed to act as measurer for the Biloxi Yacht Club (a member of the American Power Boat Association), and the club not being prepared to weigh racing boats, I would greatly appreciate the favor if you would tell me whether or not there is any other acceptable method of determining the rating of boats in this class. I know of no club in these waters prepared to weigh these boats, therefore we will have to find some way to give them a fair rating. The "speed bug" has stung our people, too, and there are quite a number of speed boats of the hydroplane and other somewhat similar types competing in our regattas this year.

H. H. R., Biloxi, Miss.

[While more satisfactory results are probably obtained by determining the area of the midship section by weighing the boats, yet the results will not be very far different if the area is obtained by measurement, either the actual area or that determined by the A. P. B. A. Rules. Until a year or so ago the measurement method of determining the area was the only one used and it worked out fairly well, until the advent of the hydroplane. We believe that if you keep displacement boats and hydroplanes in separate classes, that the rules should work out fairly well, if the boats are of more or less similar type. Of course, one of the objections of trying to handicap uniformly these two types of boats is that the rule puts such a penalty on the waterline length, which in reality has no significance in a hydroplane but is of considerable importance in a displacement boat.]

Information for a Cruise.

To the Editor of MoToR BoatinG, *Sir:*—

Undoubtedly you, Boating Magazines, are responsible for a great deal of the enthusiasm with which we, who read your entertaaining articles, are fired, and one does not realize until one has fitted out and is all ready to start that there are a great many things that one's charts do not tell. We are contemplating a cruise of indefinite length and duration, living aboard all of the time. We begin our cruise on the Canadian Coast, then down the St. Lawrence River to well-en fin, to New York and as winter approaches we will go down the coast to the lands of eternal sunshine wherever they may be. Our auxiliary schooner draws seven feet, and I am giving you the above information, hoping to get an idea of the most attractive harbors, more than our charts can tell us, how is one to select the most desirable anchorage when one is not acquainted in the vicinity?

E. N. S., Sodus Pt., N. Y.

[We would advise you to obtain copies of the U. S. Coast Pilot from the Department of Commerce and Labor at Washington, or any of their agents in the various seaport towns. These coast pilots are published in book form, canvas bound and contain all the information, we believe, that you desire. They sell for 50 cents a volume, as follows:

Volume I and II—From St. Croix River to Cape Ann.

Volume III—From Cape Ann to Point Judith.

Volume IV—From Point Judith to New York.

Volume V—From New York to Chesapeake Bay.

Volume VI—Chesapeake Bay and tributaries.

Volume VII—From Chesapeake Bay to Key West.

Volume VIII—Gulf of Mexico.

They may be also had for the Pacific Coast and for Porto Rico. They contain a description of all lighthouses, light vessels and fog signals, list of life saving stations, etc., and information regarding tides, tidal currents, variation of the compass, tow boats, pilots, etc. General information concerning the several bodies of water, harbor and quarantine regulations, supplies, facilities for making repairs, usual or best anchorages and other matters of practical interest. Sailing directions, dangers, aids to navidation, etc.

Much additional information in regard to the tides and tidal currents may be obtained from the government tide tables published by the Coast and Geodetic Survey. These give the time of high and low water at many important seaport towns in North and South America, Asia, Africa, Europe and Oceania, and contain a thorough treatise on the question of tides in general. They also give the latitude and longitude of all important ports, with the tidal differences from the standard ports of reference.]

New Things for Motor Boatmen

Williamson Flexilyte.

The portable extension light, which has for some time been made by the L. A. Williamson Co., 261 Broadway, New York City, has recently been brought out in a new type particularly adapted to use with a motor boat. The wire of this device is wound up inside of the case and it may be extended to any length desired for use. When the wire has been unwound to the right length the reel can be locked with the thumb-catch and the light can be hung over the boat in any position desired. With the regular type of Flexilyte a plug is furnished which fits into the regular type of lamp socket, but with the automobile Flexilyte, this is designed to be used instead with the storage batteries of the boat or with a small Flexilyte Tungsten dry battery which is furnished at a price of 75 cents. This battery will give 14 hours' continuous service or 28 hours' intermittant service when used with Flexilyte. The cost of Flexilyte is $3.50 in the automobile type, and a neat leather case may be purchased for 75 cents additional, making the cost complete with battery $5.00. Small clips are furnished at the end of the wire so that connection may be quickly made with any battery.

* * *

The Trinity Chime Horn.

This horn is of pleasing appearance, being made from square brass tubes of different lengths, and as all of them are blown as one, the tone is very melodious and gives a perfect chord sounding similar to an organ. The horn is connected to the exhaust pipe between the engine and the muffler and a cut-out valve is used to operate it, the valve being connected by a wire cable to a pedal. A slight opening of the valve is usually sufficient to sound the horn and a full opening will give a sound that can be heard for more than a mile. If found advisable, the horn can be placed at some distance from the exhaust pipe as long as the proper connections are made. It is finished either in nickel plate or in polished brass and costs $8 and $10 in two different sizes.

* * *

A New Log Book.

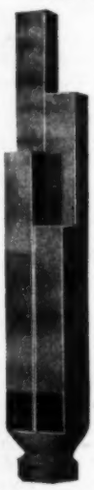
The Holliday Engineering Company, 749 Bunker Street, Chicago, have placed upon the market a log book devised by Mr. Ralph M. Pearson upon his 6,000-mile cruise around the eastern half of the United States, the volume selling for $1.50. This book is made in a convenient form for carrying upon shipboard, the pages measuring about 8½ x 14½ inches and including aside from the regular headings for arrival and departure, blanks to be filled in with the course, weather, wind, temperature, barometer, speed, etc., a space for information as to the amount of gasoline on hand, used, bought and the price paid. Space is also left for remarks. The book contains 100 sheets bound in a loose-leaf form and cannot be damaged by rain or spray.

* * *

A New Folding Seat.

The McKinnon Dash Company, of Buffalo, N. Y., are just starting to market a folding boat seat that is sure to receive a hearty welcome from all boating enthusiasts. It is really a modification of their well-known folding chair which has been extensively used by motorists and yachtsmen for some years. The back and seat are identical to the chair. Two rods passing under the seat from front to back form a support in place of the legs, and two hooks hold it securely to the regular boat seat. The frame is made of selected rod steel carefully japanned or plated. It is strong, durable and cannot get out of order. It folds compactly and can be stowed away in a very small space. The curved back and padded waterproof upholstering make the McKinnon seat surprisingly comfortable.

The new Flexilyte.



The Trinity chime horn.

The Goodnow gasoline gauge.

The McKinnon boat seat.

The Moore reversing switch.

Inst Pocket Life Preserver.

One of the most useful accessories for the motor boat that has been brought out in some time is a small pocket self-inflating life preserver made by the Inst Lighter Company, Columbus, Ohio. This is sold at a price of $2, which includes a carrying case for the preserver and a can of powder for inflating. The ingenious feature of this device lies in the fact that although it weighs but four ounces and can be carried in the pocket almost as easily as a handkerchief, it is automatically and instantly inflated upon coming in contact with the water. This will support a person for several days, and as an added precaution a mouthpiece is provided with an automatic valve so that the user may keep the preserver inflated with air if for any reason the length of time in the water should cause some of the buoyancy to be lost. This mouthpiece is in a position so that the wearer can reach it without even using his hands. The powder which is designed to be kept in the preserver generates a warm gas immediately upon contact with the water and this buoyancy will support a person for a long time. Additional powder can be obtained for 50 cents per can, containing sufficient for several charges.

* * *

Goodnow Gasoline Gauge.

The gauge shown in the accompanying illustration is made by the Goodnow Manufacturing Company, 754 Old South Building, Boston, and consists of a 15-inch stick, stained black, with 20 brass markers arranged upon it so that the number of gallons in the gasoline tank may be measured. The numbered markers are slideable and may be adjusted to show the number of gallons in a given tank whether it is square, round, oval or irregular in shape. The depth of each gallon is the same in square sided tanks, and in round or oval tanks the depth of the gallons will be less toward the middle. The indicating gauge shown registers the depth of the gasoline, and if the tank holds more than 20 gallons extra markers may be inserted as ordered. The price for the regular style is 50 cents, and extra long gauges for deep tanks, numbered up to 30 gallons may be secured for 75 cents.

* * *

Moore Reverse Switch.

A switch has just been placed upon the market which will prove a boon to the owners of small boats who are in the habit of running their craft without reverse gears. As every boat owner knows, a two-cycle engine may be reversed by cutting off the ignition and again switching it on at just the right instant so that the motor will turn in the reverse direction with the spark advanced. The difficulty is to make the connection at the exact instant that will accomplish this result, and the Moore switch is designed to care of this automatically. It consists merely of a small attachment for the inside rim of the flwheel and another for the engine base or bed. When the engine flywheel is revolving at its normal speed the action of centrifugal force holds the tripping roller which is attached to the flywheel out toward the rim. If the chain which is shown in the accompanying illustration is pulled, however, the connection with the ignition is broken until the tripping roller is allowed, by the slower rotation of the flywheel, to make the connection again at just the right speed so that the spark is caught on the reverse and the motor will run in the opposite direction without fail. This device may also be used for two or three-cylinder motors. The price is $7.50 for a single cylinder, $10 for a double cylinder, and $12 for a three-cylinder motor. The device is made by J. B. Moore, 657 K St., N. E., Washington, D. C.

The Departure of Detroit.

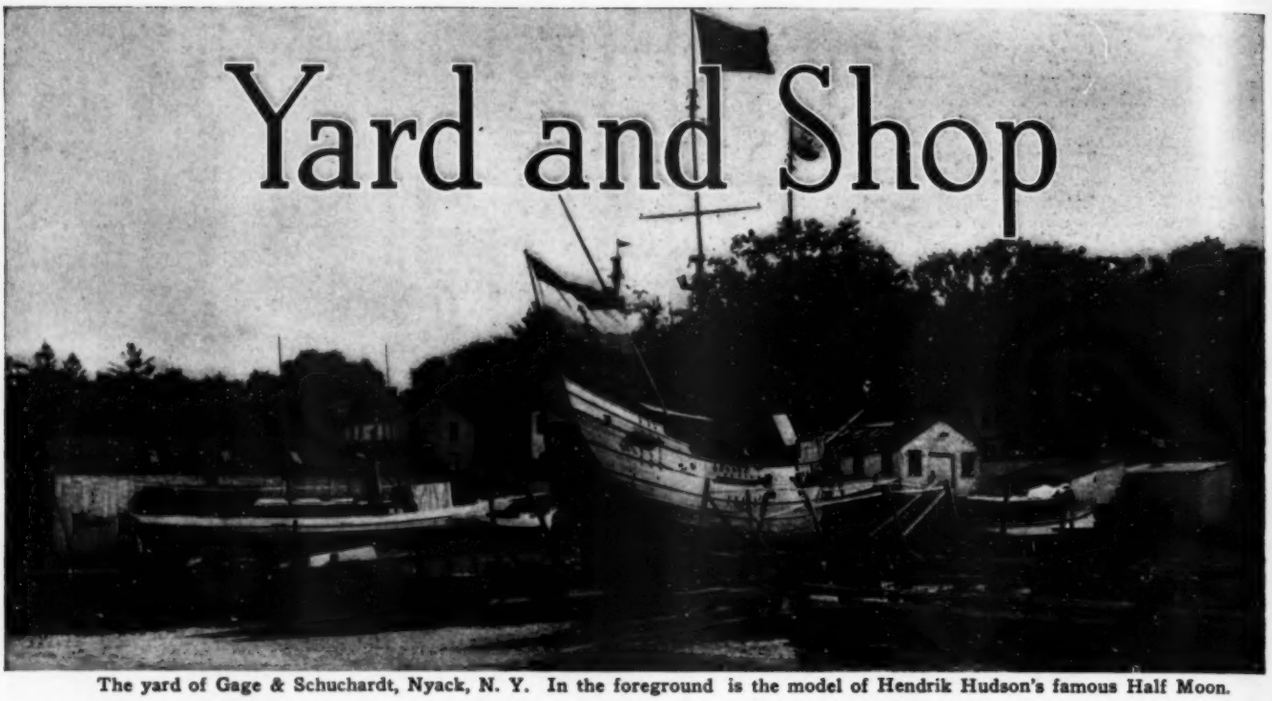
(For a description of this boat and her cruise see pages 6 and 7.)

Detroit, loaded for her trans-Atlantic trip, leaving the anchorage of the New Rochelle Yacht Club.

Looking forward. The arrangement of the wheel and binnacle shows the influence of sailboat practice.

Interior of the cabin, the crew and the engine-room. Note the manifold with connections to the seven gasoline tanks.

Yard and Shop



The yard of Gage & Schuchardt, Nyack, N. Y. In the foreground is the model of Hendrik Hudson's famous Half Moon.

Sturdy Plug Gets Iowa Agency.

The Sturdy Manufacturing Company, of Chicago, Ill., manufacturers of the Sturdy spark plug, have granted the Cedar Rapids Sales Company, of Cedar Rapids, Ia., the exclusive sales rights of their products in the state of Iowa. The new agents have opened an office at Avenue A and Fourth street, Cedar Rapids.

Oshkosh Company Buys Marine Hardware Concern.

The Oshkosh Metal Products Company, of Oshkosh, Wis., has recently purchased the entire marine hardware supply business of Chas. Kaufmann, of the same city, and will continue it on a much larger scale. The Oshkosh Metal Products Company manufactures almost everything in the way of hardware for motor boatmen and yachtsmen, as well as for larger craft and carries in stock a complete line of boat fittings and supplies.

Ferro Appoints Western Canada Agent.

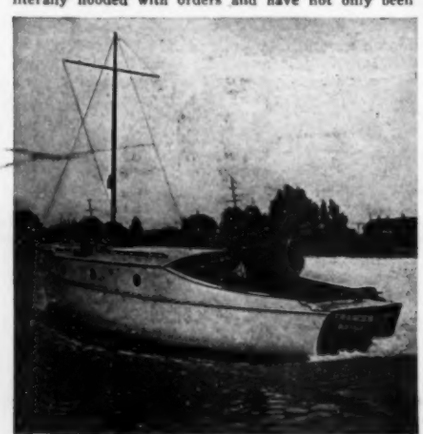
Taylor & Young, Ltd., 922 Metropolitan Building, Vancouver, B. C., who are well known as boat builders along that section of the Pacific Coast, have been appointed sole distributors of Ferro engines for British Columbia. The new agents have four marine ways, two open and two under cover and transact a very large business. Besides Ferro engines a full line of repair parts and accessories will be carried in stock at all times.

Aermore Company Files Suit Against Trinity Chimes Horn.

The Aermore Manufacturing Company, of Chicago, Ill., has filed a bill in the United States Circuit Court against the New Era Manufacturing Company, makers of the Trinity Chimes exhaust horn, alleging infringement of the patent granted to the Aermore Company, January 23rd, 1912, for an improvement in exhaust horns. The complainant prays for an injunction and for an assessment of damages.

Michigan Wheel Company Flooded with Orders.

The Michigan Wheel Company, of Grand Rapids, Mich., makers of Michigan speed wheels, have been literally flooded with orders and have not only been compelled to run a day and night shift, but have doubled the day force and put on about 25 extra men at night. The company reports that sales this year have been 20 per cent. higher than any previous year's business. With the added facilities the company is well able to keep up its policy of shipping within 48 hours after receipt of orders.



Frances, built by G. R. Richardson, North Tonawanda, N. Y., and equipped with a Sterling motor.

Operating the Moore reverse switch for two-cycle engines, made by J. B. Moore, Washington, D. C.

Bosch Builds New Factory.

The Bosch Magneto Company recently completed its handsome new factory at Springfield, Mass., situated on North Main street, with rail connections with the Boston and Maine Railroad. The buildings were constructed with the idea of surrounding the thousand or more workers who will find employment inside their walls with such conditions as will enable them to use their skill to the very best advantage. Carefully prepared schemes for heating, ventilating, sanitation and general efficiency have been worked out by those who planned the structures so that absolute order and cleanliness will be maintained almost automatically. The manufacturing building has four stories, each 13 feet 6 inches high, and contains the shops and factory offices. It is 315 feet long and 66 feet deep, is built of reinforced concrete and laid out so as to provide large working space and natural light and insure the safety of the workmen. As the plant is located on one of the most frequently used state highways, the architectural appearance has been given more than the usual attention. Tapestry brick has been used for the panels, while the concrete work is painted a light buff color. The factory has a double water supply, being located on the line that divides Chicopee from Springfield, and in addition there is an artesian well which is used for the washrooms and general purposes. Special attention has been paid to the heating and ventilating systems and the arrangement of mechanical draughts prevents the dust from rising and annoying the workmen. In addition to the main building, the plant includes a power house containing a 280 h.p. Diesel engine connected to a 200-K.W. Westinghouse generator, and a boiler house. It is expected that the buildings now in use will be the nucleus of a group of structures that will employ more than 3,000 workers.

Sterling Engines to Drive Fast Boats.

From present indications, it looks as though the Sterling Engine Company would power many of the fastest boats this year. At least one Sterling power plant and possibly more will drive boats in the big International race. Count Casimir S. Mankowski, of New York City, has already entered his new 32-foot hydroplane, powered with two 8-cylinder, 150-h.p. Sterlings, in this contest, and also in the Gold Challenge Cup race and the Chicago Championship. Sterling engines will drive all of the Dixie Juniors and Baby Reliance hydroplanes. W. W. Trimpi, of Newark, N. J., owner of last year's cup winning Ace II, is building a new 26-foot hydroplane in which a 150 h.p. Sterling racing motor will be installed. E. L. King, of Winona, Minn., has a similar engine installed in a fast runabout, and J. J. Murphy, of Troy, N. Y., will have a fast 40-foot runabout this year built by the Niagara Motor Boat Company and driven by a 150 h.p. Sterling engine, while Edwin Hall, of the Rogers Peet Company, has had a Sterling of similar power installed in his new runabout. At least three other fast boats driven by these same engines have been launched within the last few weeks. In addition to these, the 43-foot cruiser Sterling, powered with a 6-cylinder, 45-65 h.p. engine, was entered in the Olympic races run in Sweden during the latter part of last month. The speedy little Baby Reliance II, owned by John J. Ryan, which the owner claims can do better than 60 miles an hour, has an 8-cylinder, 150 h.p. Sterling motor.

Aquaplaning, a New Aquatic Sport.

In these days of the hydroplane and the hydro-aeroplane, the announcement of a new aquatic sport must carry with it some real claims to originality and interest if it is to have any hope of capturing the public ear. The fact that aquaplaning has caught the attention of the nautically-inclined shows that it must posseas some really novel and interesting features.

A 43 x 10-foot K. D. frame at the shop of G. R. Richardson, North Tonawanda, N. Y.

Handsome new factory of the Bosch Magneto Co. at Springfield, Mass.

What is an aquaplane? It is simply two cypress planks bolted together so that the device will ride on an even keel at all speeds, and marked so that the venturesome rider can distribute his weight properly on his novel craft and maintain his equilibrium. For upon his ability to balance himself and stick on while standing erect on the aquaplane, which is towed by a motor boat traveling at from 8 to 30 miles an hour, depends his chances of winning his event. However, aquaplaning is not as dangerous as it sounds. The man riding the aquaplane is always on a cushion of solid water and the worst that he may have to suffer is a ducking and a swim of a hundred yards or so. In fact, aquaplaning presents a rather unusual combination—a thrilling but safe sport and withal a comparatively inexpensive one.

Good Results from Ferdinand's Glue.

L. W. Ferdinand & Co., of 201 South street, Boston, Mass., report that users of their marine glue are well satisfied with the results obtained. The company recently received a letter from a Baltimore motor boatman who owned a 48-footer with an after deck addicted to leaking. After fruitless experiments with putty, which lasted on the average about three weeks, the exasperated owner cleaned it all out and filled the seams with Ferdinand's canoe glue, which he had originally bought for a folding canvas boat. The glue did the trick and the deck remained tight. The canvas boat came in for its share, too, for when badly snagged on a fishing expedition, the glue was used to plug the hole, which it did very effectively.

Fox Boat Building Department Working Overtime.

The Dean Manufacturing Company, of Newport, Ky., builders of Fox motors, advise that their new boat building department is being worked overtime and has already turned out three 40-foot cruisers of the type shown on page 52. The Jessie A., shown in the illustration, was built for a ferry on the Cumberland river, between Cumberland City, Tenn., and Cuttawa, Ky. Her power plant is a 4-cylinder, 5 x 5-inch, 40 h.p. Fox medium duty motor. On her trial trip this motor drove the hull at 15 miles per hour. Two other hulls now in course of construction and very similar to the Jessie A will be powered with a 30 h.p., 3-cylinder Fox and a 125 h.p., 8-cylinder Van Blerck respectively. A feature of these hulls, which were designed by Edw. Aylor, is their shallow draft, which is only 20 inches at the stern. A boat similar to the Jessie A costs about $1,650. In addition to these craft, the company has several 14 and 18-foot hydroplanes under way, which will be equipped with Fox de luxe motors for the coming races on the Ohio river. These engines have shown up well in speed events and are installed in boats like the Motor Bug, which showed up so well at Atlantic City, and Br'er Fox, a 28-mile displacement boat.

Chadeloid Gets Injunction.

The Chadeloid Chemical Company, of New York City, recently obtained a preliminary injunction in the United States District Court for the Southern District of New York against the Wilson Remover Company and John M. Wilson, in a suit for alleged infringement involving Ellis patent No. 714,880, covering an ingredient used in paint and varnish removers. The opinion of Judge Lacombe granting the motion for a preliminary injunction was in part as follows: "The small amount of carbolic acid which defendant adds to the compound may or may not to some extent improve it, but it seems to be none the less an infringement of the patent in suit under the liberal construction accorded to its claims in prior adjudication. A prima facie case of infringement seems to be made out and preliminary injunction may issue as prayed." The court permitted the suspension of the operation of the injunction in case the defendant wished to appeal, upon condition of the defendant's filing monthly statements of manufacture and sales and giving a $5,000 bond.

A Generator for Gas Searchlights.

The Rose Manufacturing Company, of Philadelphia, Pa., recently perfected a patented gas generator which is operated by simply turning it over. The act of inverting the generator breaks the contact between the wet carbide and the moist ashes, thereby immediately discontinuing the generation of gas. By again turning over the apparatus, gas is instantly made without any waiting, as is necessary with common generators. The Rose generator is odorless and safe in operation. The apparatus is marketed under the well-known trade mark "Neverout" and is suitable for lighting the interiors of cabins as well as furnishing illumination for searchlights, running lights, etc. The illustrations on page 52 show the method of construction and operation.

A New Departure in Propellers.

A radical departure from accepted propeller designs is found in the Coyne Box Turbine propeller, which, according to the makers, has shown wonderful results.

An Evinrude-powered motor rowboat.

The design of the wheel, as will be seen in the illustration on page 52, breaks away entirely from the usual type. The Coyne wheel, it is claimed, will give a large increase in speed coupled with reduced fuel consumption. It has been tested out by experts on the Pacific Coast and the fact that John Wolff is having one of these propellers built for his new speed boat and intends to install one on the Oregon Wolf, speaks well for what it can do. The wheel is furnished in straight pitch or true screw as desired. Further information can be obtained from W. E. S. Coyne, of the Coyne Box Turbine Propeller Company, 16-17 Niegler block, Spokane, Wash.

Evinrude in Larger Quarters.

The Evinrude Motor Company, manufacturers of detachable rowboat and canoe motors, at Milwaukee, Wis., are now occupying their new factory in that city, which gives them a total floor space of 31,000 square feet. The company has enjoyed a remarkable growth which can readily be seen from the fact that just about two years ago their manufacturing facilities were contained in only 400 square feet of floor space.

A New and Improved Steering Wheel.

The Hall-Gibson Company, Rochester, N. Y., recently placed on the market a new steering wheel designed to perform its work in a more efficient and satisfactory manner than the ordinary type. The drum is of cast aluminum with the score cut in a taper. One turn of the tiller line around the drum, with no pin, is sufficient, since the groove in the drum is so designed that the harder the tiller rope pulls the tighter it is gripped. Another good feature is the rope guide which extends completely around the drum and eliminates any possibility of a slack tiller line rising or falling off the drum. In other respects the outfit is similar to the other models of steering wheels made by the company. The column is 1½ inches in diameter and the mahogany wheel is 17 inches, with smooth friction automobile controls centered within the wheel. The company also manufactures vertical steering gears for cruisers, horizontal bulkhead gears, automobile gears in chain and sprocket and rack and pinion types, and maple and scored drum types.

Fulton Factory Running at Full Capacity.

The Fulton Manufacturing Company, of Erie, Pa., makers of Fulton self-sparking engines, report that they have been very busy for some time past and that although their factory has been running at full capacity all the time, they have been unable to get a stock of motors ahead. In spite of this, however, there has been no difficulty about shipping motors on time. According to the company's figures, their 1912 business shows an increase of more than 100 per cent. over that of 1911. One explanation of the increase in popularity of these engines is the fact that the ignition system, which does away with coils, batteries, timers, vibrators, etc., and is waterproof into the bargain, is appreciated by those who have had their motor boating lives made miserable by ignition troubles. Another useful point to remember is that the makers of Fulton engines have a very complete line of agencies and service stations along the entire Atlantic coast, where repair parts as well as complete engines can be obtained.

Dates Set for 1913 Boston Show.

The announcement cards for the 1913 Motor Boat and Engine Show at Boston, Mass., held under the auspices of the New England Engine & Boat Association, have been sent out and reveal the fact that the show next year will come a week later than usual, the dates being February 1st to 8th. The management of the exhibition, which will take place in the Mechanics Building, will be given to Chester I. Campbell, 5 Park Square, Boston, as in previous years.

Sales and Charters.

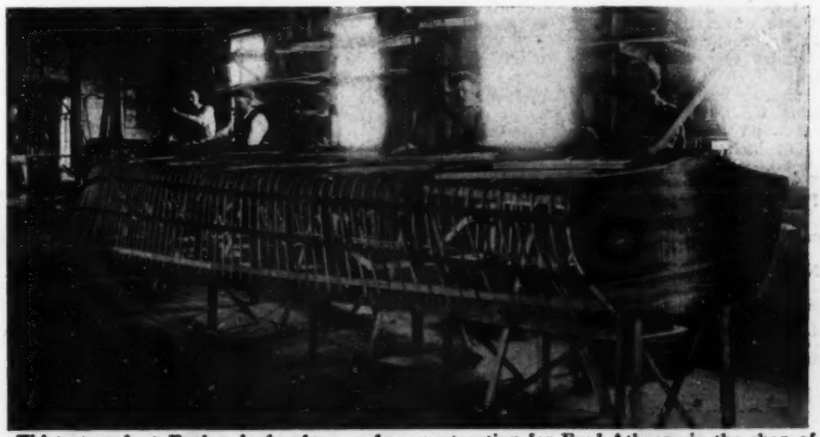
The Hollis Burgess Yacht Agency, Boston, Mass., has sold the 35-ft. waterline yawl Syren, owned by Russell Gardner, of the Cottage Park Yacht Club, Winthrop, Mass., to Judge Stanley M. Bolster, of Boston; and the 40-foot motor boat La Reine, owned by E. A. Studley, of Portland, Me., to Herbert M. Plimpton, of Norwood, Mass. The same agency has chartered the 53-foot motor boat Totem, owned by Capt. Kimball, of Boston, to Wm. C. Forbes, governor of the Philippine Islands, who will use her at Nashawena Island, Buzzards Bay, this summer.

Prices of Victor Engines.

The Victor Marine Engine Company, Detroit, Mich., have announced the following scale of prices to apply to their line of marine motors: Single cylinder, 1½ h.p., $28.00; 3 h.p., $49.75; 5 h.p., $75.00. Two cylinder, 6-8 h.p., $100; 10-12 h.p., $150.

Swimming Scientifically Taught.

It is an old story that many men who follow the sea never learn how to swim. Just the same it by no means follows that the motor boatman should imitate his professional brother in this respect and considering that motor boats have been known to catch fire, sink or otherwise behave in a manner which compels

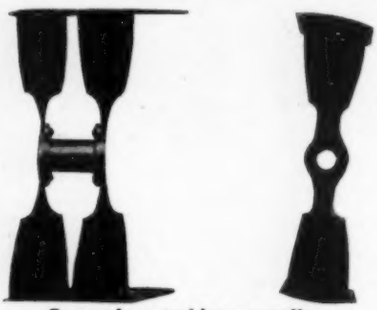


Thirty-two foot Fauber hydroplane under construction for Fred Athearn in the shop of Jones & La Borde, Oshkosh, Wis. She will have two special 150 h.p. Doman engines.

their crews to incontinently take to water, the wise mariner should equip himself with a knowledge of swimming just as he does his boat with running lights, bell or whistle. To this man, "Swimming, Scientifically Taught," by Frank Eugen Dalton, should prove of value. Mr. Dalton, who teaches scientific swimming at the Dalton Swimming School and is the originator of the Dalton method, has written his book for the beginner as well as the expert. The various strokes are taken up in detail and carefully explained with the aid of numerous diagrams, making each successive position of the arms, legs and body perfectly clear to the novice. Floating and diving are fully treated as well as the more intricate strokes. A section is given to the sport of water polo and the last few pages contain valuable hints on saving life and resuscitating the drowning. "Swimming, Scientifically Taught" is published by the Funk & Wagnalls Company and is priced at $1.25 net or $1.35 by mail.

"The Marriage of Captain Kettle."

"The Marriage of Captain Kettle," by Cutcliffe Hyne, is a yarn of adventure on the high seas and the deserts of Africa that will catch the interest of the reader from the start and hold it until the last page is turned. No one who makes the acquaintance of the small but intrepid Owen Kettle, from his first appearance as chief mate of the tramp Norman Towers to the end of his adventures as captain of the Wangaroo, engaged in salving, by a strange freak of fortune, the very steamer of which he had been first mate, can fail to be strongly attracted by his courage, his boundless energy and unfailing resourcefulness in the face of apparently insurmountable difficulties. The story of how he fell in love with one woman and how another woman fell in love with him and nearly involved the whole expedition in disaster through her efforts to bring the little captain to her feet, makes a complicated romance of absorbing interest. Mr. Hyne knows his ground thoroughly and the glimpse he gives us of life in the merchant service adds color and reality to his yarn. "The Marriage of Captain Kettle" is published by the Bobbs Merrill Company.



Coyne box turbine propeller.

Cleveland Autocraft in the Far East.

The Cleveland Auto Boat Manufacturing Company, of Cleveland, Ohio, have shipped a number of their stock model motor boats to India during the last few months, where they have been giving general satisfaction. They recently shipped one of their 25-foot mahogany runabouts, with a high power motor, to the ruler of one of the Indian provinces for his personal use. The company recently sold a 42-foot cabin cruiser to F. S. McDonald, president of the Ashtabula Hide & Leather Company, Ashtabula, Ohio.

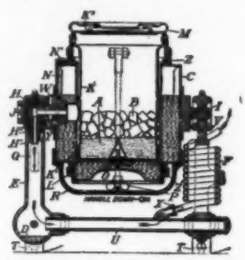
Trade Literature Received.

The Frisbie Motor Company, Middletown, Conn. Catalogue of Frisbie motors for 1913. This is an attractive example of the catalogue maker's art and presents the line of four-cycle marine and stationary motors built by the Frisbie Company in a clear and interesting manner. Frisbie marine engines are built in 3-5 h.p. and 4-7 h.p. sizes with one cylinder, 6-10 h.p. and 10-14 h.p. two-cylinder sizes, 12-16 h.p., 16-25 h.p. and 30-40 h.p. sizes with four cylinders, and in two six-cylinder models developing 35-50 and 50-75 h.p. respectively. Several new features are shown in this catalogue, such as the water-jacketed air compressor driven from the main shaft, which, if specified, will be furnished as regular equipment on the 25 h.p. and larger sizes; the large bronze bilge pump of the plunger type attached to the forward end plate and driven by an eccentric from the half-time shaft, and the Frisbie return oil pump which the company has recently originated and which takes oil from the base after it has been thoroughly filtered and forces it back to the mechanical oiler where it can be used over again. The Frisbie stationary engines are manufactured in 2, 7 and 14 h.p. sizes and with the exception of the 2 h.p., these motors as well as the entire marine engine line are supplied with a device adapting them for kerosene fuel when desired.

New London Ship and Engine Company, Groton, Conn. The "Nlaeco News," for July. This is the "power cost number" of this interesting periodical and a number of articles have been collected from various technical publications and reprinted, which will be found a very valuable guide in satisfactorily estimating the relative cost of operating steam and Diesel oil engines, by ship owners who contemplate installing the latter system of power. Needless to say, the articles all tend to show the superiority of the oil engine in cost of operation.

Stickler Weedless Wheel Company, Portage, Wis. Leaflet describing and giving the sizes and prices of the Stickler weedless wheel. The peculiar shape of this propeller not only makes it impossible to catch anything on the wheel, but greatly lessens the danger of breaking the propeller, as in striking an obstruction the blow must be a glancing one.

Neverout gas generator for searchlights made by the Rose Mfg. Co. Type 28, double cylinder.



Sectional view of the Neverout gas generator, showing the device in the inverted or "on" position.

CALENDAR.

Gunfire, Jr. She is owned by W. J. Brainard, of the Frontenac Yacht Club; is 20 feet long and has a 52 h.p. Mercury motor.

AUGUST.

July 29th to August 3rd. Petoskey Motor Boat Club. Annual regatta on Little Traverse bay.

July 30th to August 7th. Scripps' Cruise from Detroit, Mich., to Hamilton, Ont.

1st, 2nd and 3rd. Gold Challenge Cup Races, under the auspices of the A. P. B. A. at Frontenac.

2nd. Ocean City Yacht Club, Ocean City, N. J. Ocean race.

2nd, 3rd and 4th. Los Angeles Motor Boat Club, Los Angeles, Cal. Cup races off Long Beach for hydroplanes, displacement boats, fishing boats and cruisers.

2nd, 3rd and 4th. Hudson River Yacht Racing Association. Association cruise to Poughkeepsie and return.

3rd. Mahopac Boat Club, Lake Mahopac, N. Y. Sealed order race.

3rd. Riverton Yacht Club, Riverton, N. J. Speed boat handicap races.

4th. Cleveland Powerboat Club, Cleveland, O. Races.

4th. Excelsior Yacht Club, Brooklyn, N. Y. Open race for motor boats 40 feet and under to Seabright, N. J. 45 miles.

4th. Pistakee Yacht Club, Pistakee Bay, Ill. Handicap races.

4th. Lakewood Yacht Club, Rocky River, O. Open boat races.

6th. Lake Champlain Yacht Club, Burlington, Vt. Annual regatta.

8th, 9th and 10th. Great Lakes Power Boat League. Third annual regatta at Hamilton, Ont., under the auspices of the Royal Hamilton Yacht Club.

10th. Delaware River Club, Torresdale, Pa. Speed boat handicap races.

10th. Motor Boat Club of Buffalo, N. Y. Free-for-all races for 28-footers.

10th. Mahopac Boat Club, Lake Mahopac, N. Y. Race for the Commodore's Cup.

10th. Ocean City Yacht Club, Ocean City, N. J. Races.

10th and 11th. Sacramento Boat Club, Sacramento, Cal. Races.

10th to 17th. Western Power Boat Association. Championship races in connection with the water carnival at Chicago, Ill.

10th to 17th. New Rochelle Yacht Club, New Rochelle, N. Y. Annual cruise.

11th. Lakewood Yacht Club, Rocky River, O. Races for all classes and for the Bennet & Fish speed boat trophy.

11th. San Francisco Yacht Club, San Francisco, Cal. Motor boat races.

14th. Camden Motor Boat Club, Camden, N. J. Races.

14th. Ocean City Yacht Club, Ocean City, N. J. Motor boat races.

17th. Flat Rock Motor Boat Club, Lafayette, Pa. Speed boat handicap races.

17th. Stamford Yacht Club, Stamford, Conn. Annual regatta.

17th. Detroit Motor Boat Club, Detroit, Mich. Cruise to Monroe piers.

17th. Holly Beach Yacht Club, Wildwood Crest, N. J. Open regatta.

17th. Mahopac Boat Club, Lake Mahopac, N. Y. Water sports.

17th. Ocean City Yacht Club, Ocean City, N. J. Club outing and picnic.

17th and 18th. South Bay Yacht Club, San Jose, Cal. Cruise.

18th. Hudson River Motor Boat Club, New York. Races.

(Continued on page 66.)

Jessie A, a 40-foot cabin boat built by the Dean Mfg. Co., of Newport, Ky., for use on the Cumberland river.

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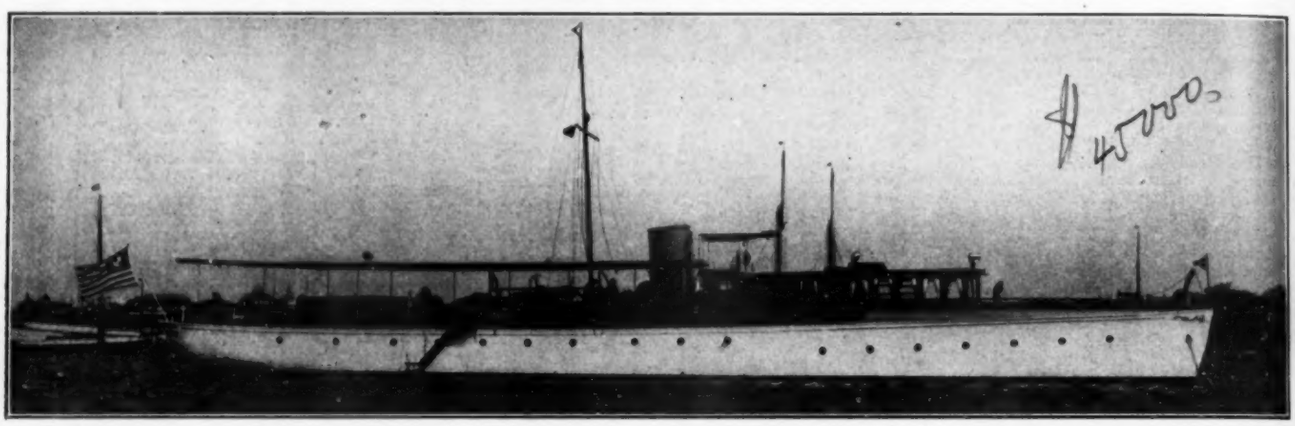

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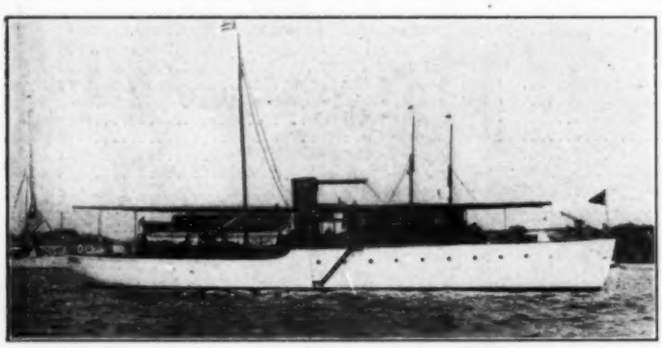

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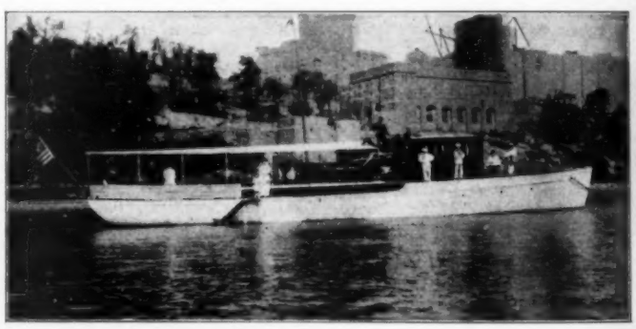

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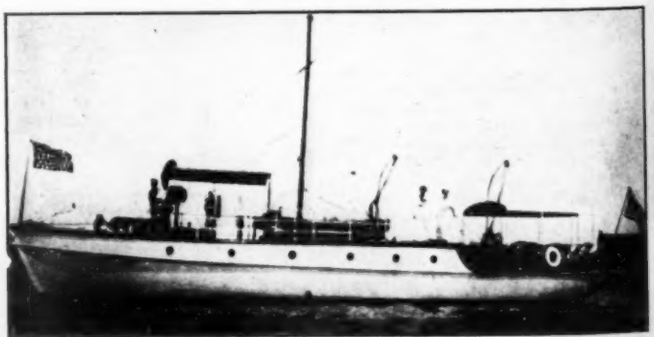

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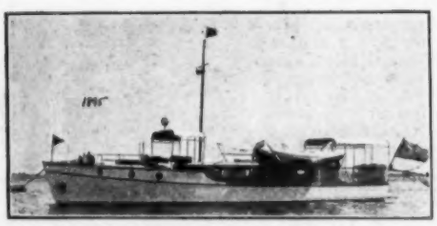

No. 1895.—For Sale—Bridge deck cruiser, 50 x 10 x 3.3 ft.; built 1910; speed 12-14 miles; double stateroom, saloon, etc. Cox & Stevens, 15 William St., New York.

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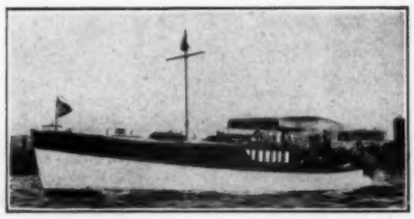

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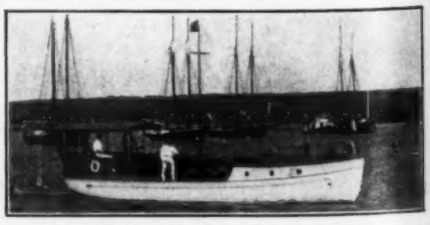

No. 1116.—Bargain.—40 x 9.6 ft. raised deck cruiser; built 1910; speed 10 miles; 24 H. P. new Lamb motor; double stateroom, saloon, etc.; in commission. Cox & Stevens, 15 William St., New York.

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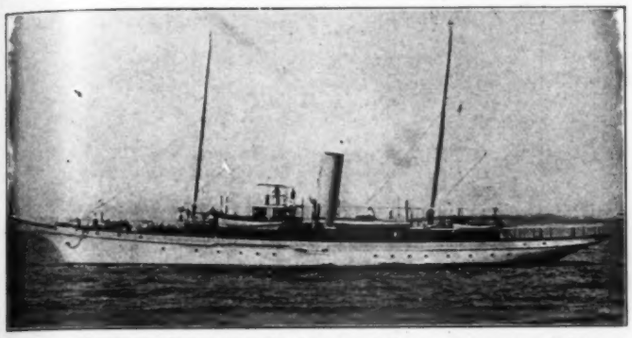

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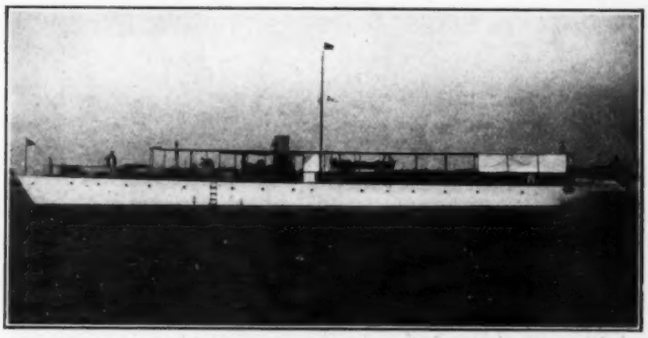

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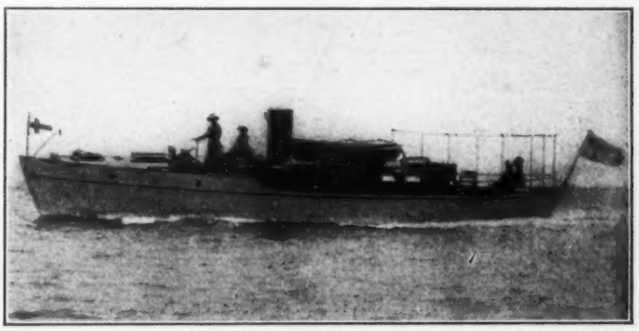
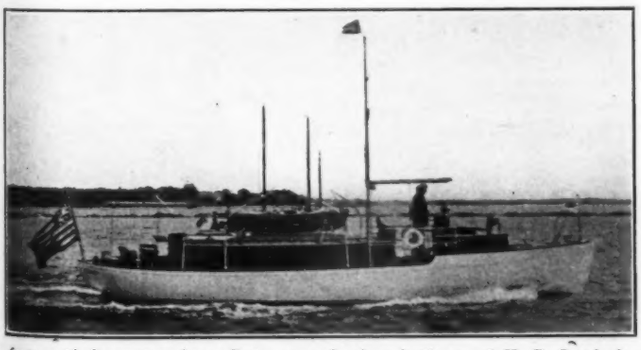
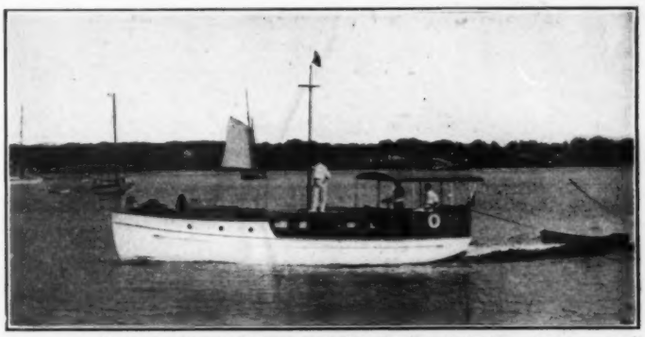


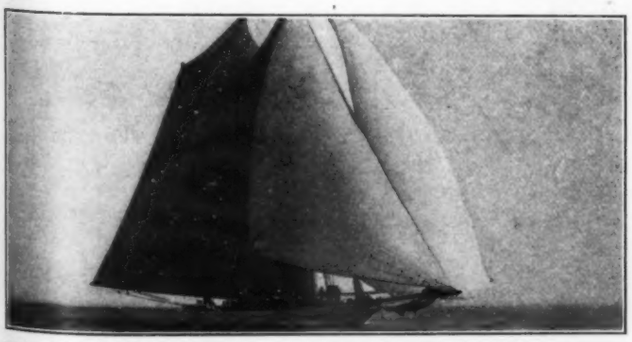
6604.—50 ft. cruiser. Stateroom and saloon berth 5. 30 Murray-Tregurtha. Speed 12 miles. Electricity. One paid hand. In commission.



6945.—44½ ft. coast cruiser. Stateroom and saloon berth 4. 18 H. P. Standard. In commission. Low price.



7001.—40 ft. coast cruiser; 9½ beam, 3½ draught; launched 1910. Stateroom and saloon berth 4; new 24 H. P. Lamb engine installed 1912; speed 10 miles; electric lights. Equipped with everything for long cruises and comfort; whole outfit in perfect condition. Cost $5,000; will sell for $2,300; exceptional bargain.



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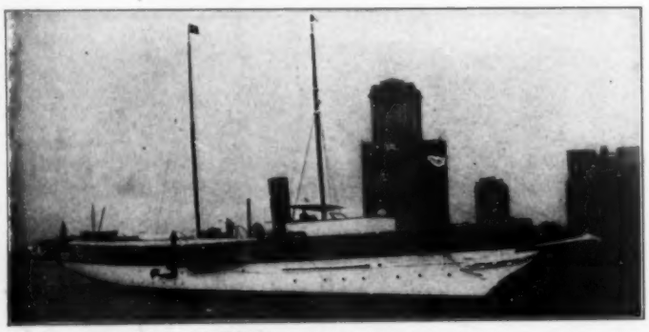

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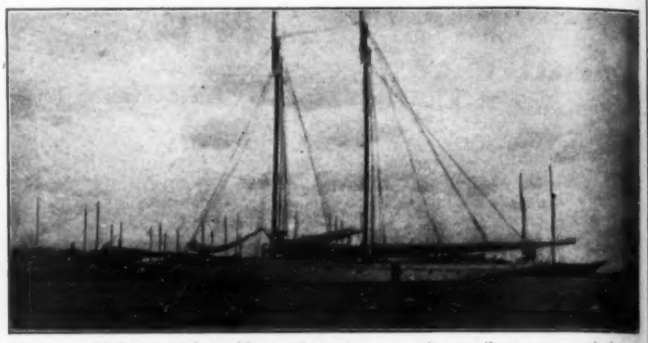

No. 209.—Modern, steel auxiliary schooner, 90 x 18; excellent accommodations; reasonable figure. Sale and charter.
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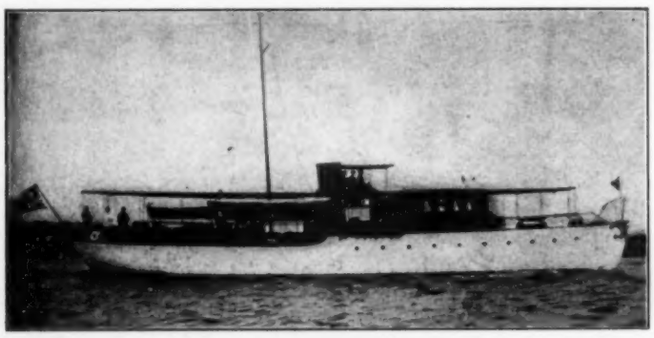

No. 1483.—Ideal 90 x 17 ft., twin screw cruiser; 4 staterooms, large deck dining saloon; two 60 Craig motors. Inspection invited.
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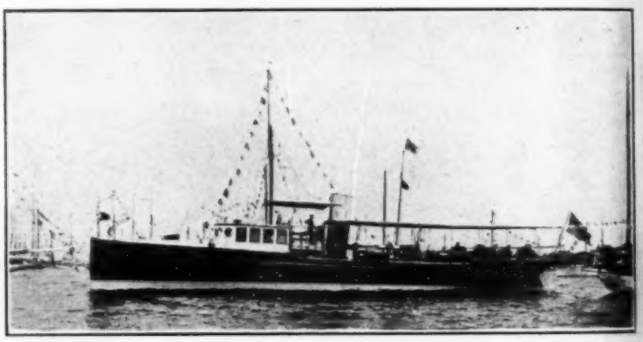

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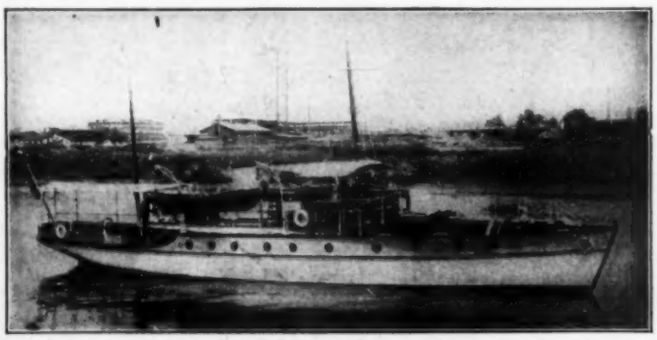

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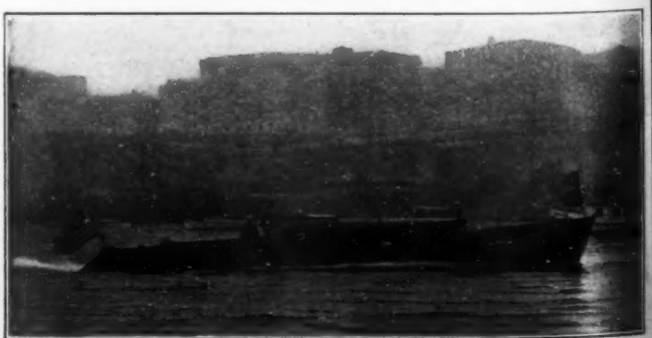

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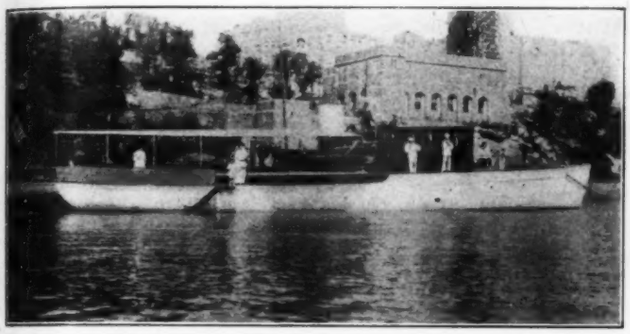

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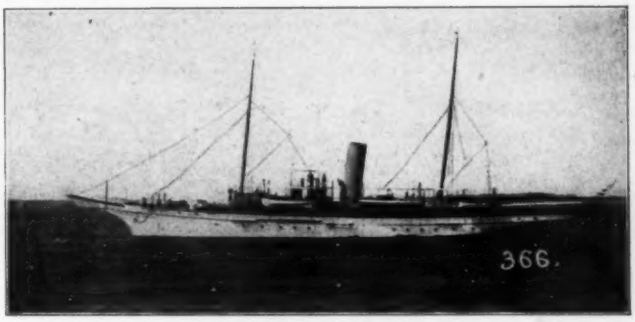

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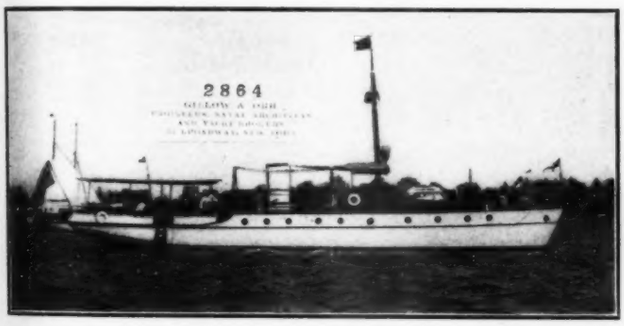

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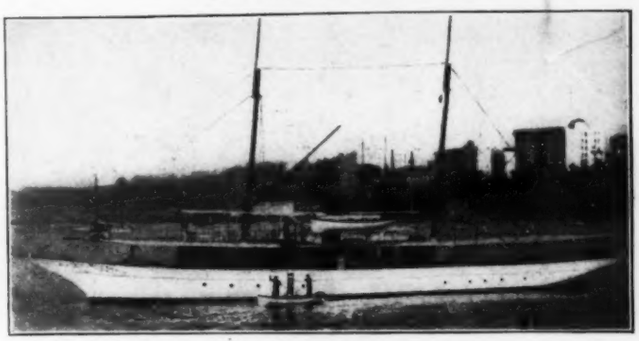

No. 1531.—Sale, Charter; 134 ft.; dining saloon, social hall, two staterooms, bath.
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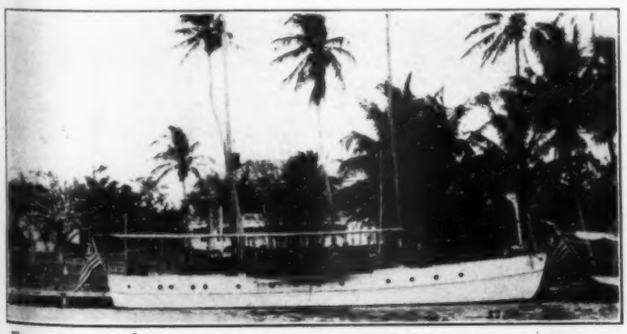

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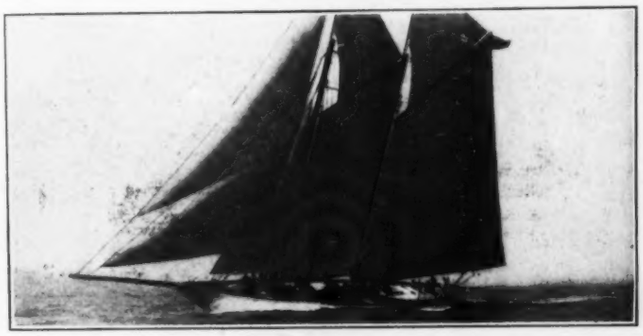

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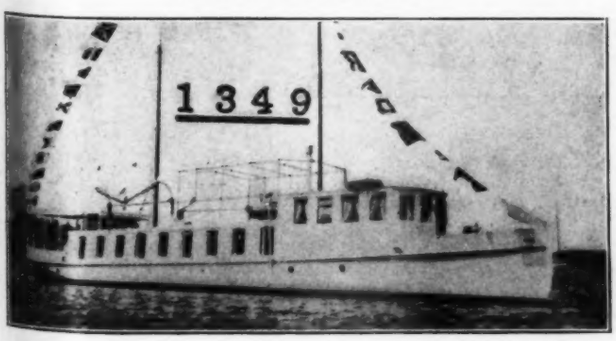

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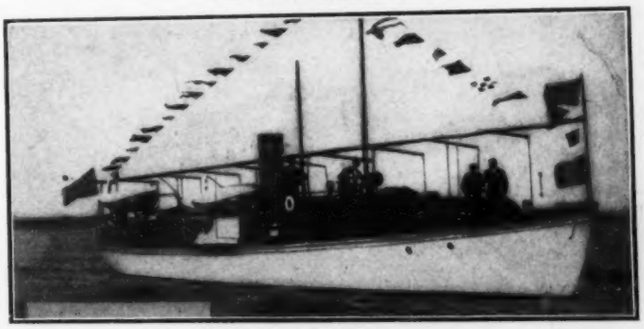

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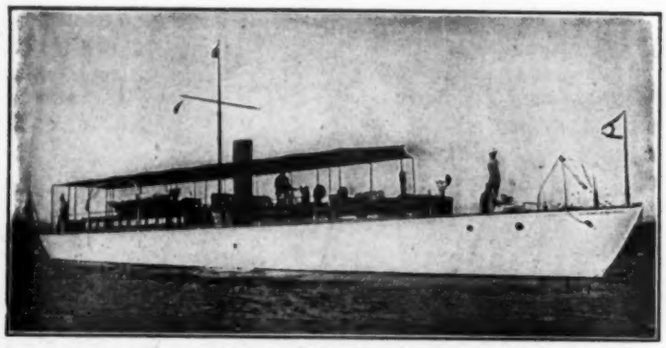

No. 7424.—91 ft. power boat; two 125 H. P. Craig engines; speed 18 to 20 miles. Price exceptionally low.
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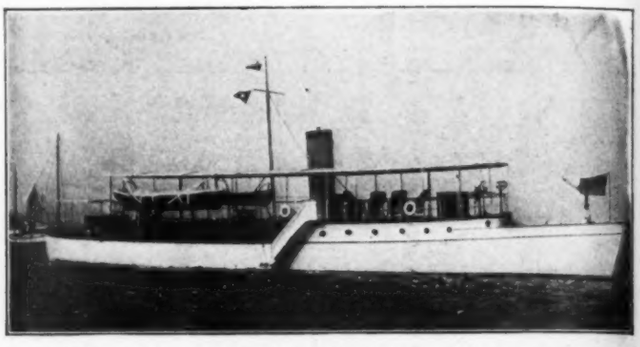

No. 7291.—For Sale.—92 ft. seagoing motor yacht; Twentieth Century motor; excellent condition.
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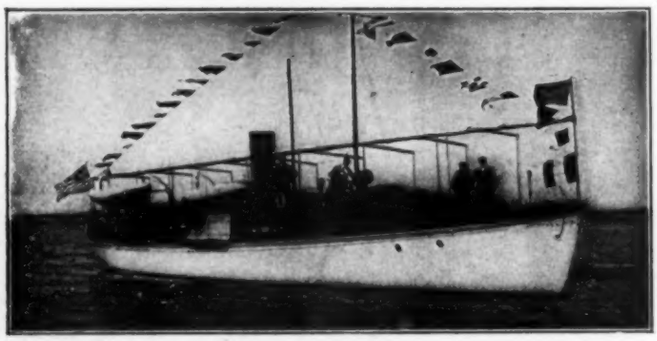

No. 7286.—For Sale, might charter, 95 ft. twin screw; speed 14-16 miles. Price attractive.
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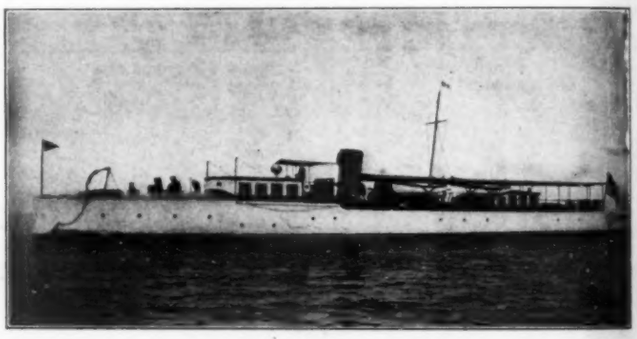

No. 164.—Sale or Charter—Steel steam express cruiser, 4 staterooms, saloon, 2 baths. Speed 17 knots.
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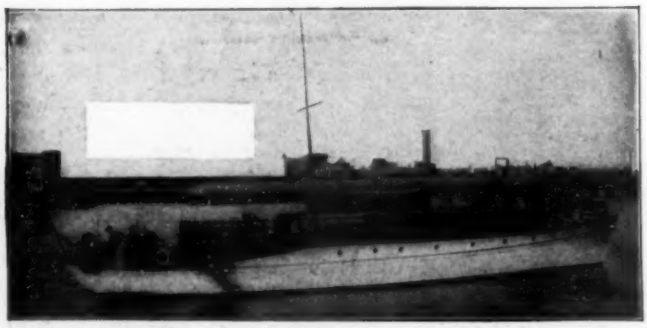

No. 7674.—For Sale or Charter—75 ft. twin screw; 2 staterooms, saloon, bathroom, etc. Large deck space.
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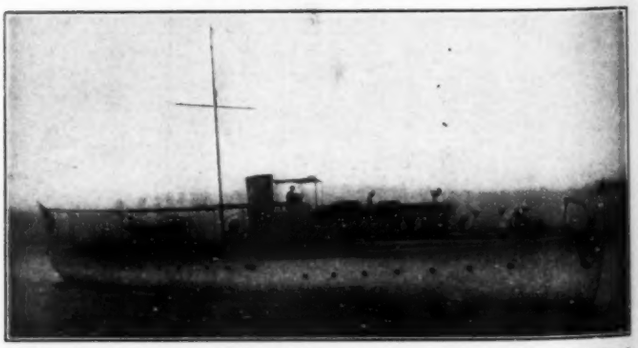

No. 7999.—For Sale or Charter—Fast twin screw power yacht. Exceptional accommodations.
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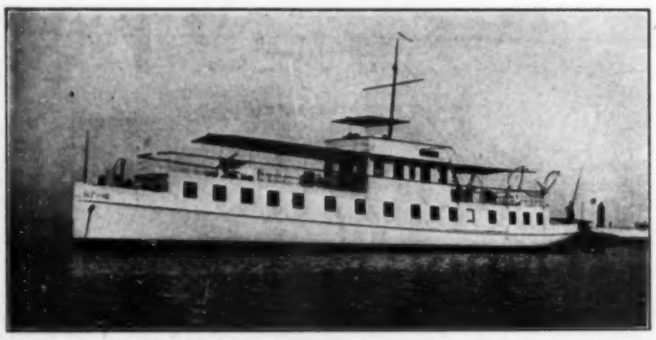

No. 1864.—For Charter—Desirable 110 ft. twin screw houseboat. Excellent accomodations.
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No. 7334.—For Sale or Charter—Desirable twin screw 65 ft. cruiser; 12 miles.
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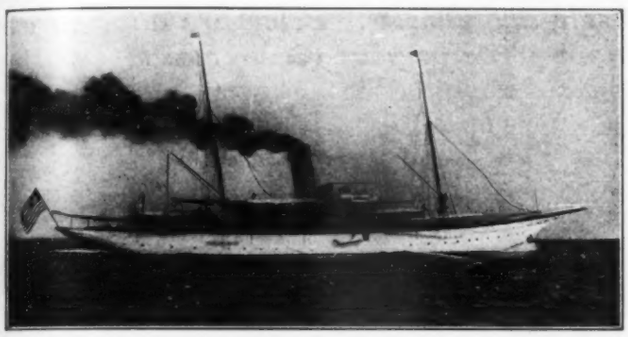

No. 3904.—200 ft. seagoing steam yacht. Accommodations aft. Reasonable price.
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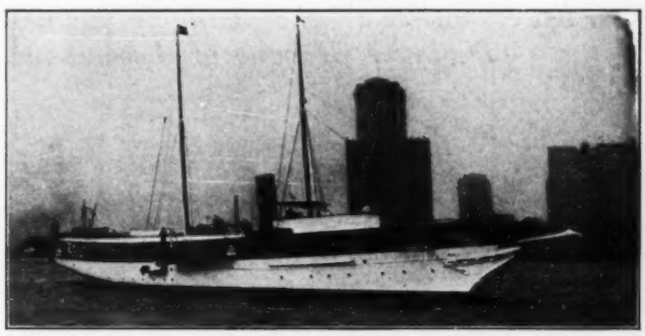

No. 878.—145 ft. modern steel steam yacht. Available for purchase or charter.
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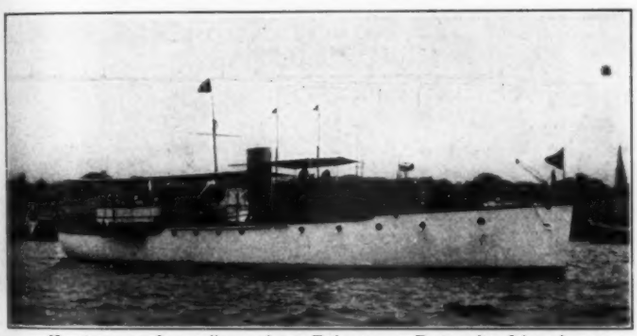

No. 6090.—90 ft. gasoline cruiser. Twin screw. Best yacht of her size.
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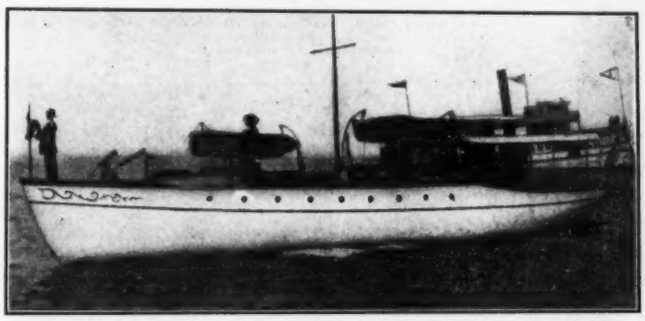

No. 4835.—65 ft. raised deck cruiser, two staterooms and saloon. Good speed.
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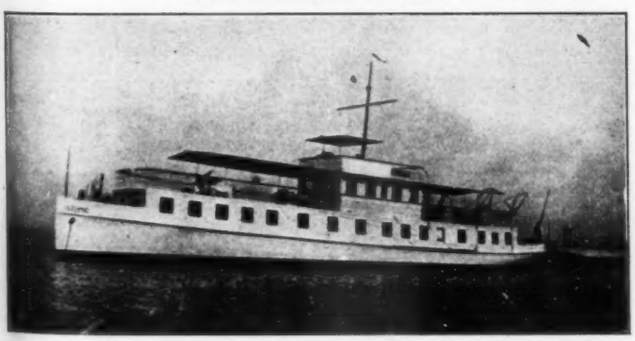

No. 5831.—110 ft. twin screw gasoline houseboat, speed 10 knots. Charter only.
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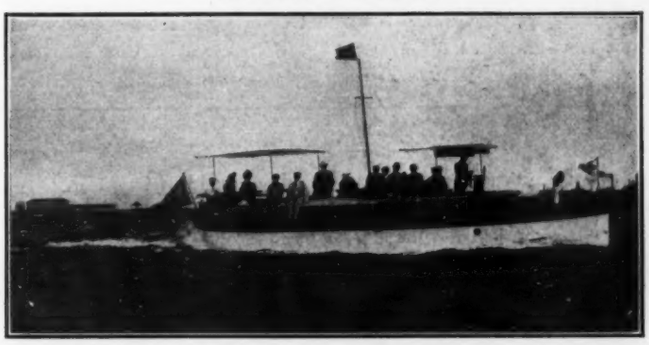

No. 4490.—40 ft. raised deck and trunk cabin cruiser. Excellent accommodation.
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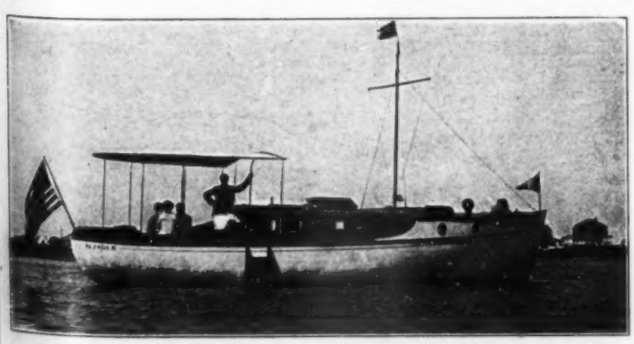

No. 5854.—41 x 36.6 x 10 x 3; 24 H. P. Lamb motor.
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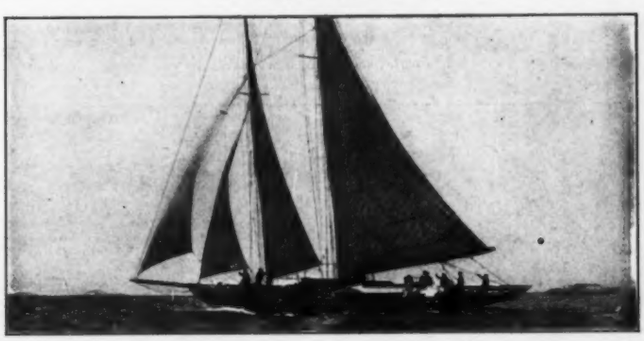

No. 4496.—Auxiliary schooner, 50 ft. waterline. 25 H. P. engine.
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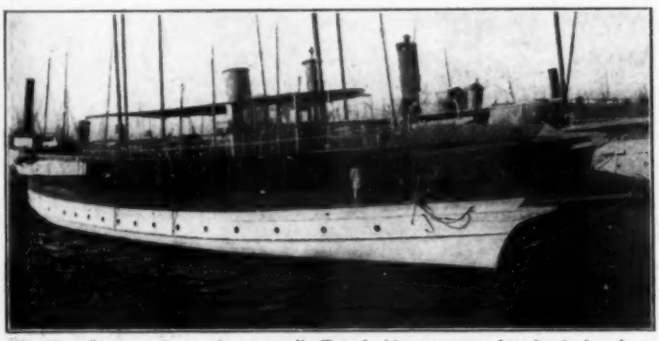

No. 886.—Steam yacht, 105 foot over all. Two double staterooms, four berths in saloon. Beautifully furnished. Must be seen to be appreciated.
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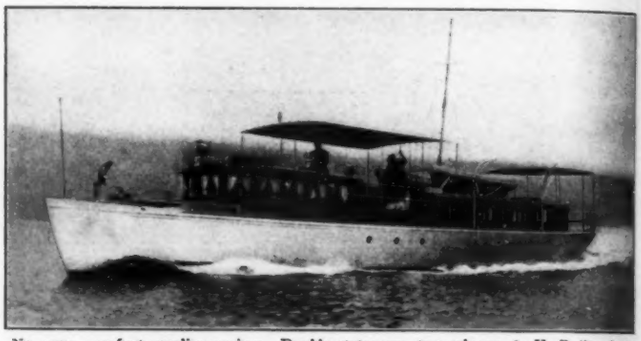
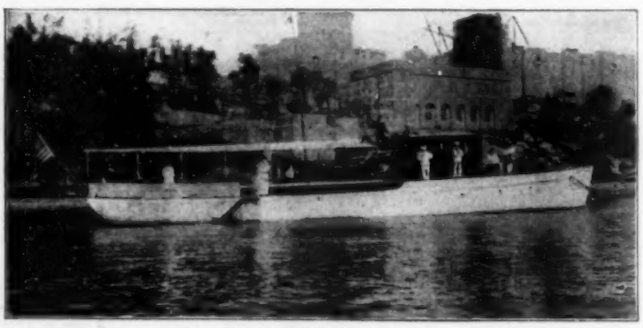


No. 1274.—70-foot gasoline cruiser. Double stateroom, two saloons, 60 H. P. Standard, speed 13 miles.



No. 1028.—Sale at a low figure, or will charter. 80 foot; two staterooms, saloon, bath. Speed 15 miles.
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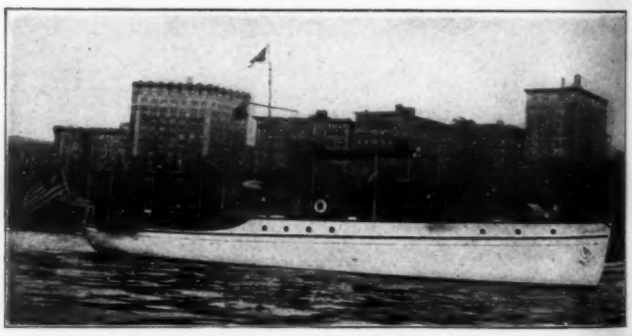
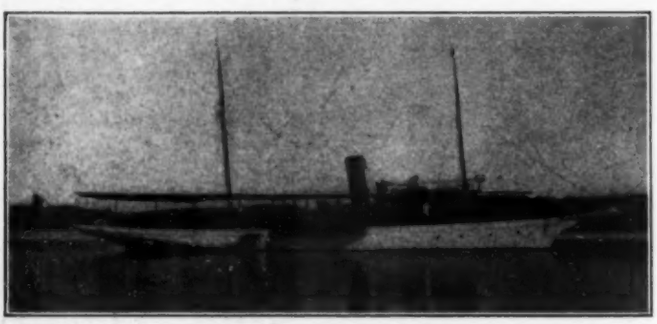


No. 1238.—75 foot twin screw; three staterooms, bath, dining saloon. Speed 14 miles.



No. 3555.—Bargain—90 foot twin screw steam yacht; stateroom and saloon berth six; bath. Price $5,500. Act quickly.
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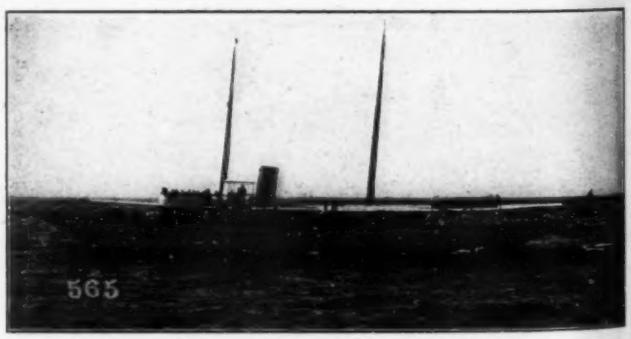
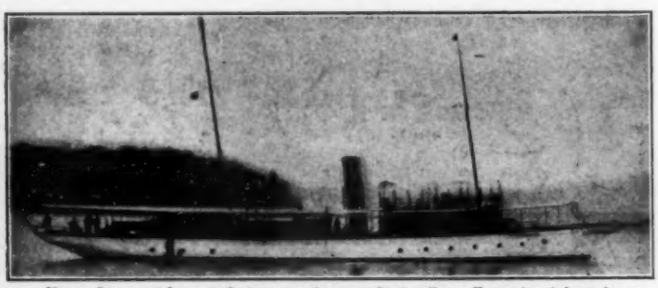


No. 2816.—Sale or Charter—145 foot; five staterooms; baths. Speed 15 knots.



No. 1485.—150 foot steel steam yacht; speed 18 miles. Exceptional bargain.
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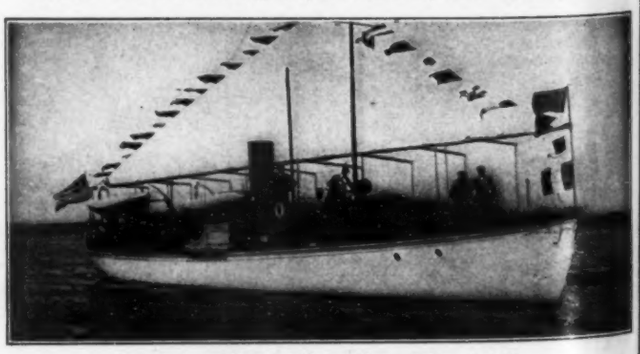

No. 1146.—95 foot gasoline cruiser. Price attractive.
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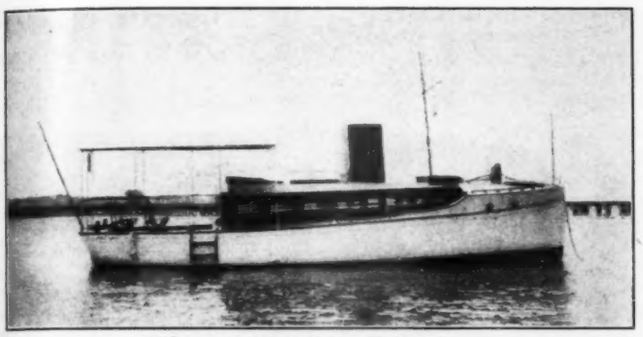
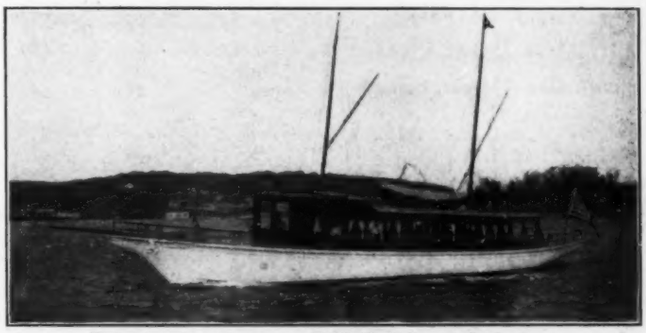


No. 1059.—33 x 8.6 x 2.6; 12 H. P. Hall.
Please mention MOTOR BOATING.



No. 9204.—50 x 45 x 11 x 3; 20 H. P. Globe; speed 10 miles.
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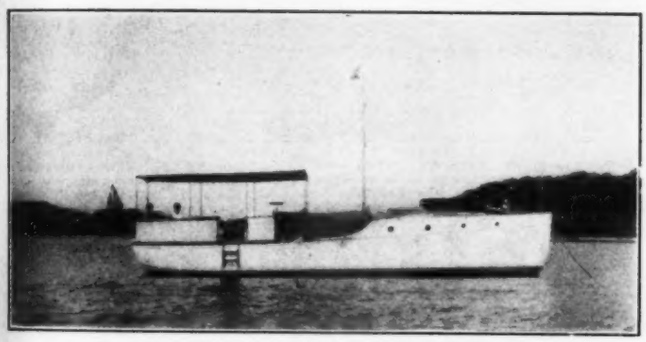

No. 948.—40 x 9 x 3.6; 20 H. P. Standard; speed 12 miles.
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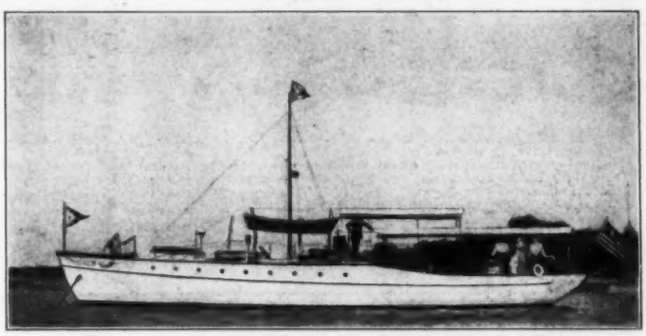

No. 397.—65 x 55.3 x 13.8 x 3.6; 90 H. P. Holmes; speed 13 miles.
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No. 8058.—87 x 84 x 14.10 x 4.4; 150 H. P. Craig; speed 12 to 15 miles.
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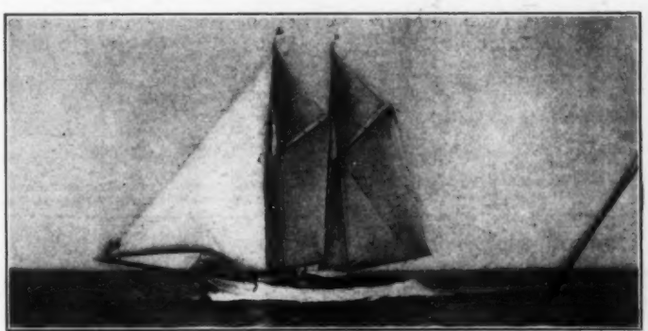

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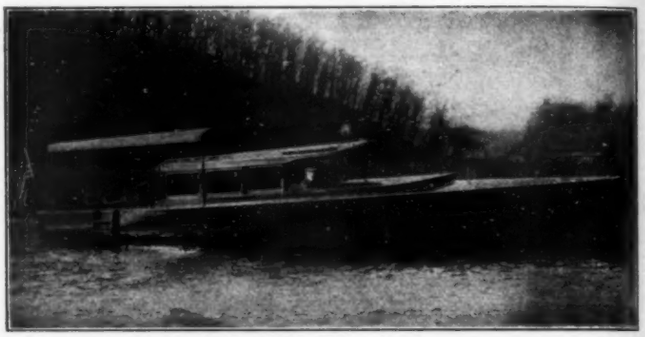

No. 83—40 FT. DAY CRUISER, 7 ft. 6 in. beam BRAND NEW. Mahogany throughout. Equipped with 90 h. p. Van Blerck motor, Bosch Dual magneto, rear starter. Speed 20 miles. Great bargain.

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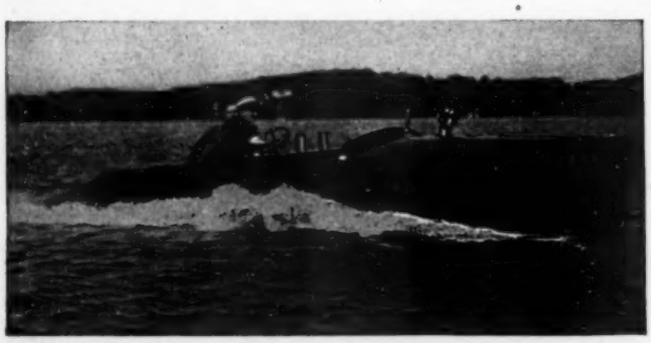

No. 87—Duplicate "Peter Pan II"—28-footer. All mahogany; sides painted white, rest natural finish; 35 H. P. Mercury motor; rear starter; ran one season. Overhauled. Prime condition. *Great bargain.*

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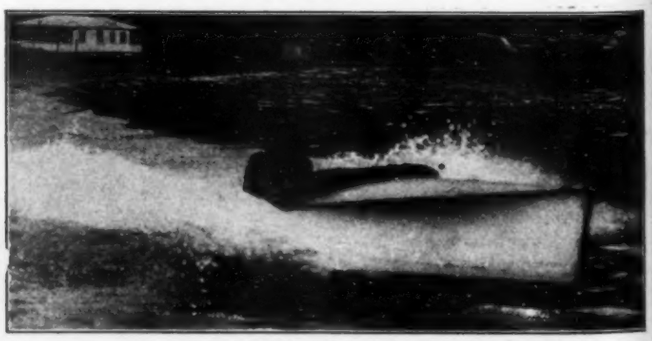

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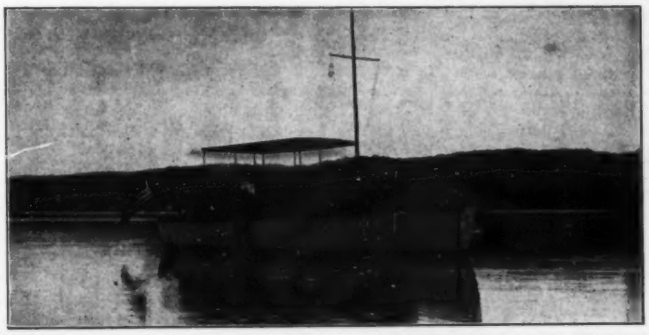

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This boat has seen very little service and is in excellent condition.
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WILLIAM H. HAND, JR., Naval Architect, New Bedford, Mass

To Block Island.

(*Continued from page 16.*)

tance and gradually grow brighter, but instead of that they were seen first as a flicker for a moment or two and then suddenly burst into full view as a bright light, appearing not far away. The explanation was that the night was so clear and our position so near the surface of the water that the curvature of the earth shut off our vision of the light until we were much closer to it than the distance it would normally be visible from, when sighted from a higher position.

It was low water at Little Gull Island at 10:02 that evening and, although we were not abreast of the light until 12:40 a.m., we still had the last of the ebb current with us and went through the race in great shape, together with a dozen Sound steamers that left New York shortly after we did and were strung out in a single file of several miles in length.

At 2:15 we had Montauk and Watch Hill lights in line abeam and at 3:20 picked up the flashing white light on the breakwater at the entrance to the new harbor of Block Island. At just 3:45 we passed the judge's boat inside of the harbor, finding the officials all awake to receive us with the announcement that Thistle had broken the record for the course that she had established in 1911 by exactly 5 minutes.

Thistle's performance was a most consistent one as she followed the previous year's schedule with almost railroad regularity, a difference of 5 minutes in 100 miles, being a pretty small variation. The other boats did not fair as well for, being slower, they met adverse currents early which greatly retarded them. Anna arrived at 7 a.m. and Debut not until 12:20 p.m., too late, of course, to figure in for any of the prizes.

Up the Hudson and Down Again.

(*Continued from page 42.*)

do considerably better than our normal 10 miles per hour. The stiff norther that had been blowing all night, kicked up such a nasty sea off Kingston Point, where our supply boat Hobo was awaiting us, that we considered it inexpedient to try to transfer the fuel in the open, so we ran inside of the breakwater and quickly made the transfer, losing only about 5 minutes.

The margin of 20 minutes ahead of our schedule that we had established at the turning mark at Albany, was maintained practically to the minute all the way down to Poughkeepsie, which was passed at 7:20. From here south we accompanied many of the yachts returning from the Intercollegiate Regatta the day before, and we had several very interesting brushes but were able to get away from them all except the Mary of Detroit, a beautiful craft of about 50 feet that had just a trifle more speed than Thistle. We had to work every bit of tide to hold her and, after passing her once, she was able to overtake and leave us a mile astern; but our superior knowledge of the tides south of Rockland Light, whereby we kept close to the west bank to catch the first of the ebb, while Mary had a strong flood-tide against her in the channel, enabled us to pull rapidly away in the last 20 miles of the race. In this stretch also we gained 5½ minutes more on our schedule time, arriving at the finish line at 1:34:30 p.m. and breaking the record for the course.

There was a wait of over 3 hours for the next boat to finish, but she was the Respite which had 6 hours' time allowance on the Thistle and easily won first place on corrected time. The rest of the boats came along at intervals of from 1 hour to 7 seconds, and when the final roll was called it was found that 11 out of the 18 boats that started had finished. Engine trouble was reported as the excuse for six of the unfortunate ones, while the mud claimed only one victim.

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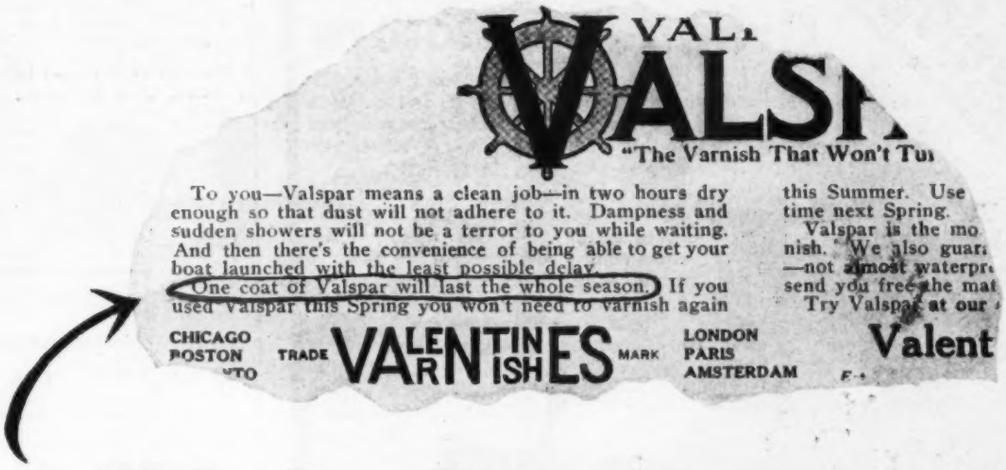
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To you—Valspar means a clean job—in two hours dry enough so that dust will not adhere to it. Dampness and sudden showers will not be a terror to you while waiting. And then there's the convenience of being able to get your boat launched with the least possible delay.
One coat of Valspar will last the whole season. If you used Valspar this Spring you won't need to varnish again this Summer. Use time next Spring.
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A Misleading Statement Corrected

IN last month's advertisement of "V A L S P A R" we inadvertently used the above marked phrase. This was an unfortunate oversight.

Good as it *IS*—and most marine men know just *HOW* good—one coat of Valspar is *NOT* adequate protection for a boat and certainly will not carry it through an entire season.

The very nature of the materials used in varnish making necessitates the use of more than a single coat for outside exposure.

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One treatment—i. e.—*THREE* good, *FLOWING COATS* of this, high-grade, waterproof varnish, applied in the Spring, will make the usual mid-summer varnishing quite unnecessary under ordinary conditions.

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None Finer Built Than Cragg TWO CYCLE Motors

All models of these two-cycle, three-port motors are equal to any in the world for power, reliability, service and satisfaction. The quality of design, materials and construction is the highest, although the prices with full equipment are extremely reasonable.

This 2-cylinder, 3½-h.p. motor has 12-inch 3-blade, 17-pitch propeller running normally 800 r.p.m. The equipment is complete and the highest grade. Our Model A 1-cylinder, 1½-h.p. motor for $37, fully equipped, starts, stops, *reverses*, or runs at high, medium or low speed, all controlled by one lever. Runs equally well in either direction, from 100 to 1,000 r. p. m.

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DRY CELLS No. 6, size 2½" x 6" 25c. each

The only cell protected by an insulated **waterproof** case.
Absolutely guaranteed for all marine work.

They cost no more than the others and do away with all your battery troubles.

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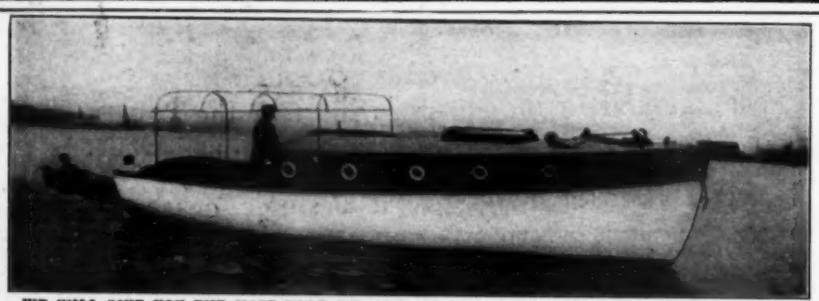

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Builders of motor boats, launches and tenders, that are of superior design, workmanship and seaworthiness. We also build a mooring buoy, especially designed for fast currents, and give special attention to building freight and tug boats, with heavy duty gasoline fuel oil motors.

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Designing and Building of all Types of Power Boats a Specialty.
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Generates gas from Kerosene, giving hot blue flame. Absolutely safe, even if overturned while lit.
Has Galvanized Frame with Brass Rail around Top and Pan Beneath for Yacht and Boat use. Several styles.
Write for catalogue and prices.
Globe Gas Light Company
25-27 Union St. Boston, Mass.

Calendar.

(*Continued from page 52.*)

18th. Pistakee Yacht Club, Pistakee Bay, Ill. Handicap races.

21st. Keystone Yacht Club, Philadelphia, Pa. Cruiser race from Wilmington, Del., to Ship John Light and return.

22nd, 23rd and 24th. Houston Launch Club, Houston, Texas. Annual regatta.

22nd, 23rd and 24th. Pacific International Powerboat Association. Pacific Coast Championship races. Astoria Motor Boat Club, Astoria, Ore.

23rd. Atlantic Yacht Club, New York. Races.

24th. Detroit Motor Boat Club, Detroit, Mich. Speed boat races.

24th. Cleveland Powerboat Club, Cleveland, O. Long distance race for cabin cruisers to Put-In-Bay and return, 140 miles.

24th. Wilmington Yacht Club, Wilmington, Del. Cruiser race.

24th. Taunton Yacht Club, Taunton, Mass. Races for all classes.

24th and 25th. Trenton Yacht Club, Trenton, N. J. Race to Fort Delaware and return, 160 miles.

24th and 25th. Los Angeles Motor Boat Club, Los Angeles, Cal. Cruise to Portuguese Bend.

25th. Lakewood Yacht Club, Rocky River, O. Races, all classes.

26th, 27th and 28th. Motor Boat Club of America. Elimination trials for the Harmsworth Cup races, Huntington Bay, L. I.

31st. Delaware River Yacht Racing Association. Speed boat handicap races at Riverton, N. J.

31st. Taunton Yacht Club, Taunton, Mass. Cruise.

31st. British International Trophy, first race. Huntington Bay, L. I. Auspices, Motor Boat Club of America.

31st and Sept. 2nd. Hudson River Yacht Racing Association. Races at the New York Motor Boat Club.

31st to Sept. 2nd. Carondelet Motor Boat Club, St. Louis, Mo. Second annual regatta; auspices, W. P. B. A.

31st to Sept. 2nd. Royal Vancouver Yacht Club, Vancouver, B. C. Inter-club cruise with Royal Victoria Yacht Club to Montagu Harbor.

31st to Sept 2nd. New Rochelle Yacht Club, New Rochelle, N. Y. Cruise.

SEPTEMBER.

1st. Pistakee Yacht Club, Pistakee Bay, Ill. Handicap races.

2nd. Pistakee Yacht Club, Pistakee Bay, Ill. Free-for-all handicap races.

2nd. British International Trophy. Second race.

2nd. Ocean City Yacht Club, Ocean City, N. J. Labor Day regatta.

2nd. Mahopac Boat Club, Lake Mahopac, N. Y. Relay race.

2nd. Holly Beach Yacht Club, Wildwood Crest, N. J. Club races and speed boat race for Moore cup.

3rd. Maumee River Yacht Club, Toledo, O. To Put-In-Bay and return.

7th. Mahopac Boat Club, Lake Mahopac, N. Y. Speed boat races.

7th. Motor Boat Club of Buffalo, N. Y. Races, 16-foot class.

7th. Trenton Yacht Club, Trenton, N. J. Class handicap races.

7th. Hudson River Motor Boat Club, New York. Open race to Poughkeepsie and return.

7th. Detroit Motor Boat Club, Detroit, Mich. Inter-club regatta.

7th to 9th. South Bay Yacht Club, San Jose, Cal. Cruise to San Francisco.

8th. Cleveland Powerboat Club, Cleveland, O. Ohio State Championship races for speed boats.

8th and 9th. Los Angeles Motor Boat Club, Los Angeles, Cal. Cruise to the Isthmus.

8th and 9th. Sacramento Boat Club, Sacramento, Cal. Races.

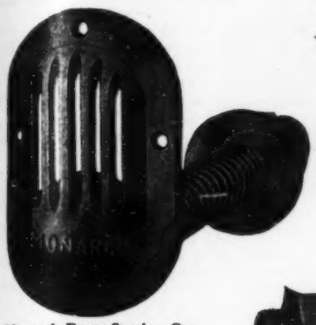
12th. Columbia Yacht Club, Philadelphia, Pa. Class handicap races. D. R. Y. R. A.

14th. Delaware River Yacht Racing Association. Record Trophy races at Camden, N. J. Speed boat class.

15th. Lakewood Yacht Club, Rocky River, O. Races for all classes.

IF YOU REALLY

desire to get more power out of your engines equip them with Monarch Auxiliary Air Valves and Monarch Special Carbureters. A Monarch Pump Suction Connection and Strainer may save your engine or boat.



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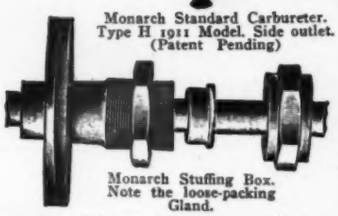
Monarch Standard Carbureter. Type H 1911 Model. Side outlet. (Patent Pending)

Monarch Auxiliary Air Valve. Will increase the power of your two-cycle engine.



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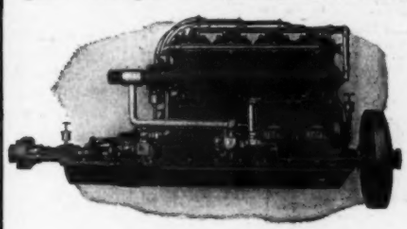

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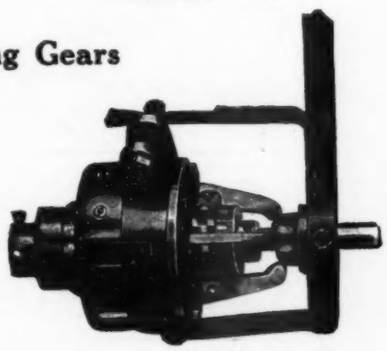

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PORTABLE BOAT HOUSE

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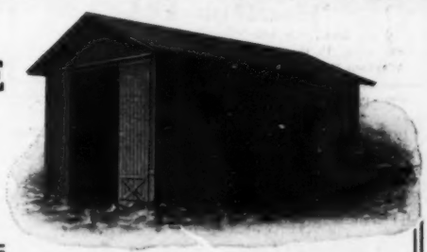

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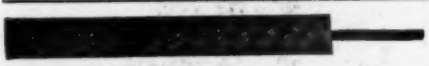
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The Yachtsmen's Club Ocean Race.

(*Continued from page 38.*)

More Brothers, of Bridgeton, N. J., takes third place this year. This boat finished ten minutes shy of the Ilys two years ago, and 48 minutes shy of the same boat last year. Luegeo II is an entirely new boat and made her maiden race. She is owned by George Fish, of the Ocean City Yacht Club. Her navigator in the race was Richard L. Young, and Peter Hall, the builder of her engine, looked after her power plant. Engine trouble, however, developed, which her owner claims was responsible for her showing on the first speed contest run.

The feature of the class B boats was the failure of the Chelwood, which is looked upon as the champion racer in South Jersey waters. She had for her competitors three new boats: the Dream, owned by Charles L. Lagen; the Mirna, owned by Joseph Snellenburg, and the Eugenia II, the new boat recently built for Dr. Eugene Swayne, of the Yachtsmen's Club.

Rufus K. Lenning, the owner and skipper of the Chelwood, was much disappointed at the defeat, but declares that his boat lost only by reason of engine trouble, which made itself manifest soon after the start, and which could not be overcome. It is interesting to note that in the race last year, over a course of 196 nautical miles, the Chelwood made the run in 20:28:23 corrected time; while the corrected time of the Dream, the winner of the race for the 178 nautical miles this year, was 21:12:17.

Among the Clubs.

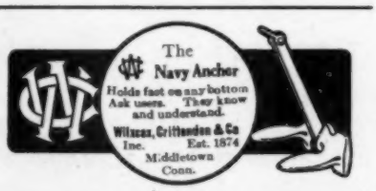
(*Continued from page 45.*)

to some other club for a stay over Sunday, thus both giving themselves a good time and getting in closer touch with the other members of the motor boating fraternity.

The Colonial Yacht Club, of New York City, held a consistency race on June 22nd. The boats raced three times around the 14½-mile triangular course and the contestants were timed for each lap, the boat making the best average being the winner. The event was won by Caniesto, owned by Dr. U. J. Baker, which covered the course in 1.25.15. Virginia made the run in 1.15.30, but her time for the last lap was so slow, owing to engine trouble, that she spoiled her record for consistency and was not placed. Scotland made a late start, not getting away until the other boats had completed one lap, but her steady work earned her second place. Sixteen boats started.

The Bergen Beach Yacht Club held a regatta on Jamaica Bay, L. I., on June 23rd for both sailing craft and motor boats, over a 10-mile course. The cabin cruiser class in the motor boat division was won by Commodore Still's Onward, in 1.43.33 elapsed and 1.33.18 corrected time. A. P. Kruger's Siren took second place; H. D. Muller's Francis, third, and W. W. Pynn's Echo came in fourth. The open cabin boat class was won by Commodore Hildebrand's Hilde, in 1.58.36 elapsed time, with Fawn, owned by C. E. Farrington, second, and Cupid, owned by W. F. McDermott, third. Elizabeth was disqualified and Minton did not finish. There were only two entries in the open boat class and but one of these, E. Nessler's Carrie, finished. Her time was 1.59.14.

The Anderson Engine Company, Chicago, Ill., has installed one of its 50 h.p. four-cylinder engines in the new 48-foot tug built for the city of Chicago. The company has also received an order from Brisbane, Australia, for eight of its motors.



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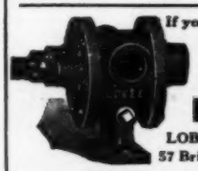
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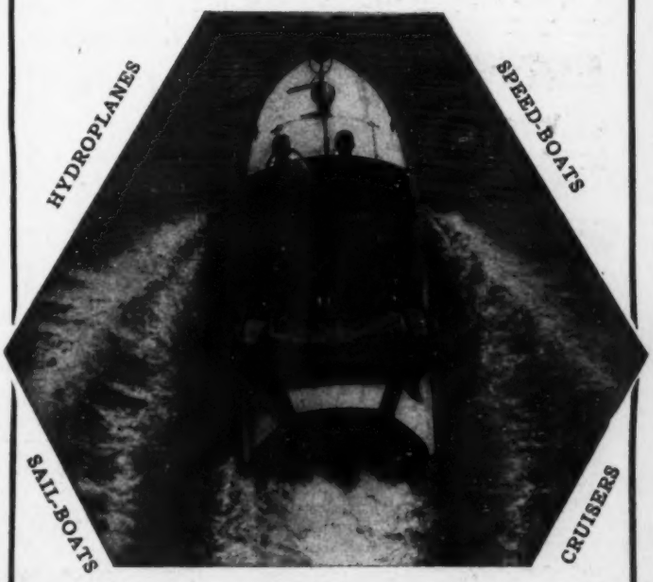

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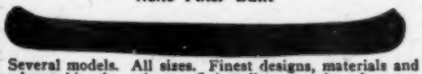

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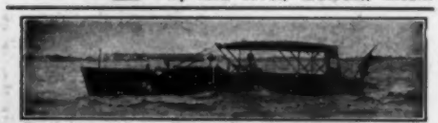

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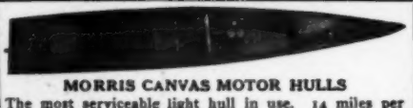

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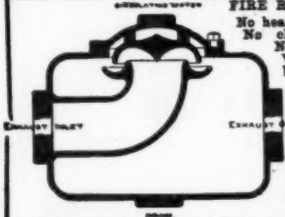

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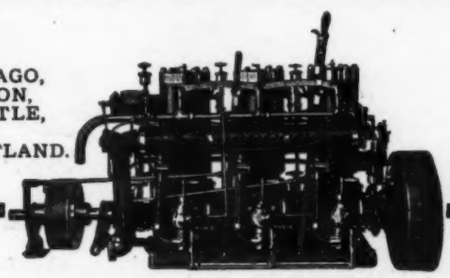

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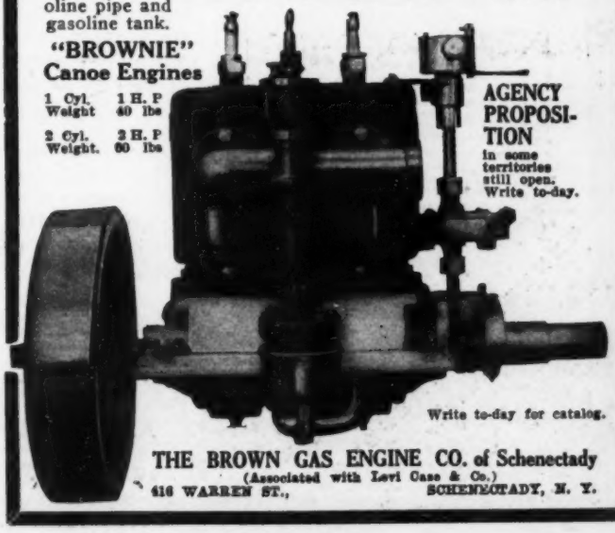

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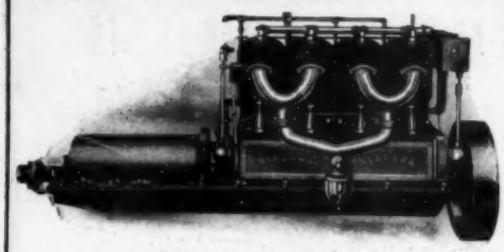

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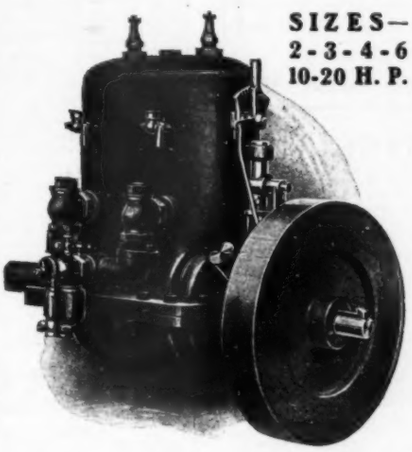

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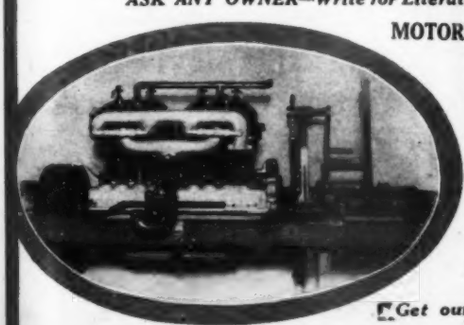

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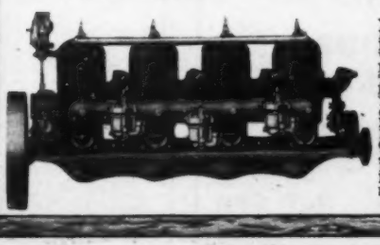

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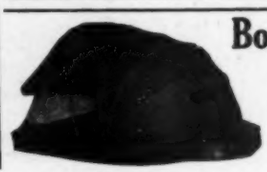

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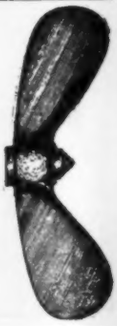

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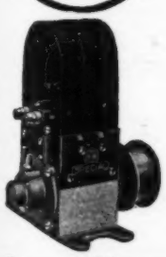

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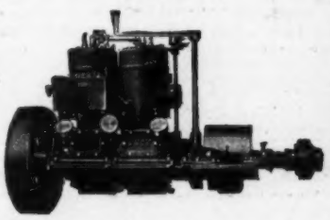

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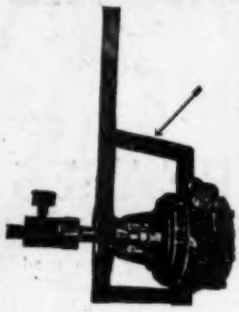

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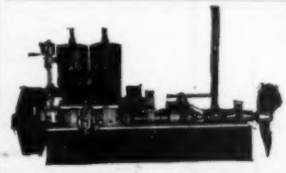

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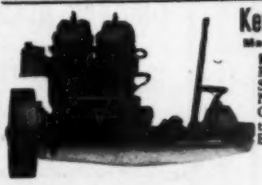

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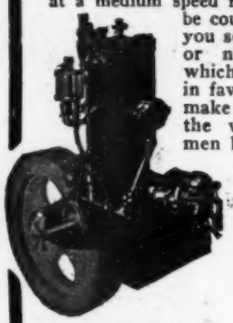

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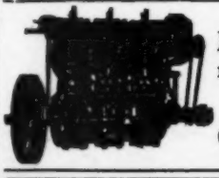

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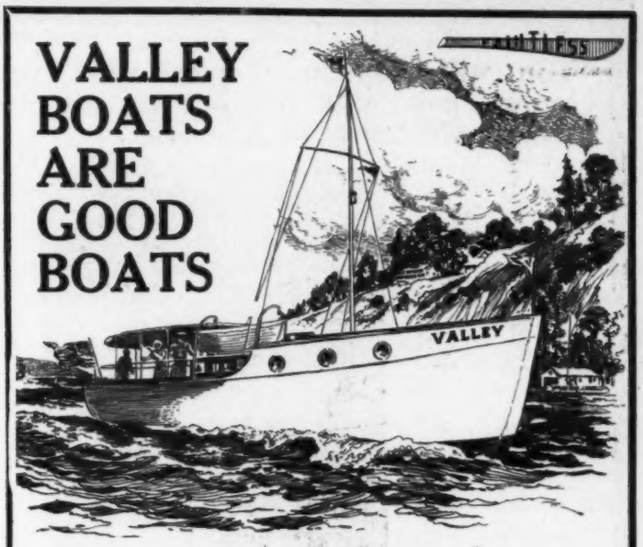

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Size of Combined Light: Glass 3½ in. x 3½ in. Height 9 in.

Size of Horn: Height 11 in. Width 2½ in.

Size of Stern Light: Glass 3½ in. x 3 in. Height 9 in.

	List Price	Cash Price
Price for Galvanized,	$10.00	$4.98
Price for Polished Brass,	14.00	6.39

Class 2.—Boats from 26 ft. to 40 ft.

16 square inches required in Glass in Side Lights.
10 square inches required in glass in Bow Lights.
1 Stern Light—White Glass Globe.
8 in. Brass Fog Bell.
1 efficient Fog Horn.
1 Fire Extinguisher.
1 Life Preserver.

Price for Outfit as above.

Price for Galvanized	List Price	Cash Price
	$18.00	$9.98
Price for Polished Brass	List Price	Cash Price
	$20 00	$9.99

Class 3.—Boats from 40 ft. to 65 ft.

25 square inches required in Glass in Side Lights.
31 square inches required in Glass in Bow Lights.
1 Stern Light—White Glass Globe.
8 in. Brass Fog Bell.
1 Efficient Fog Horn.
1 Fire Extinguisher.
1 Life Preserver.
1 required for each passenger

	List Price	Cash Price
Price for Galvanized	$18.00	$ 9.75
Price for Polished Brass	25.00	12.75

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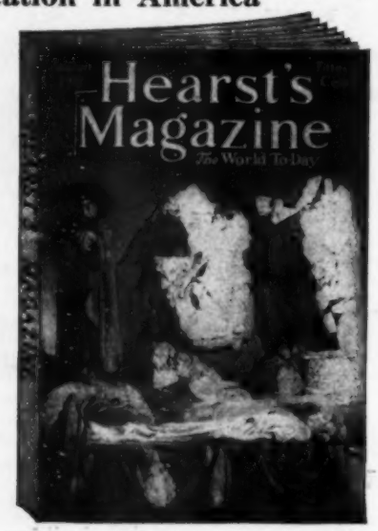

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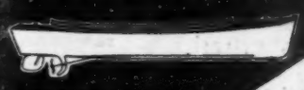

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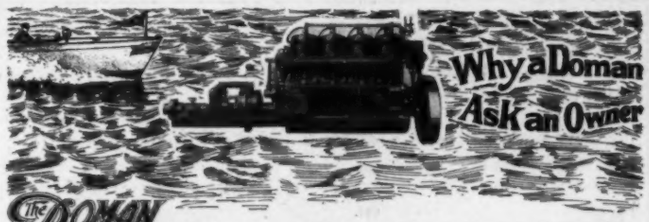

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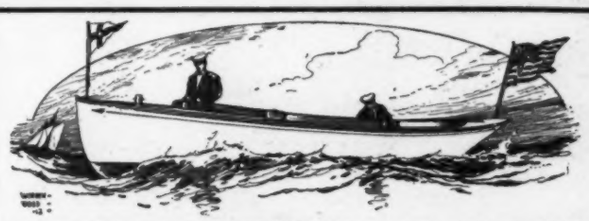

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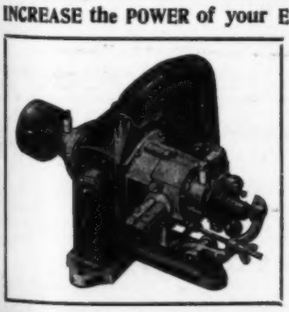

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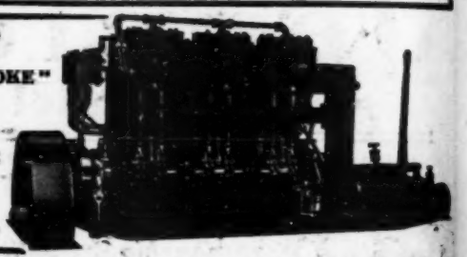

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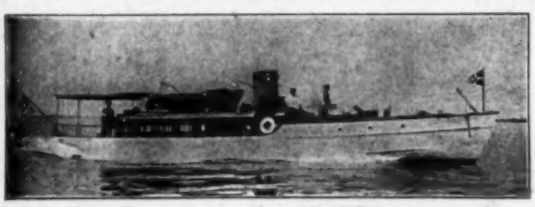

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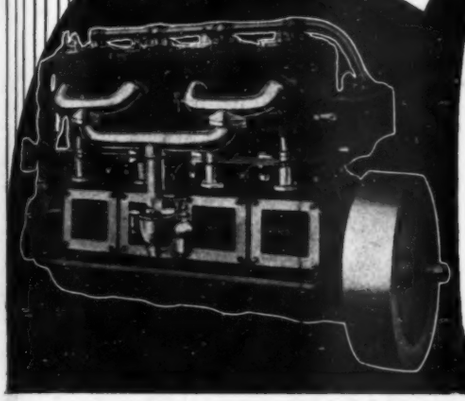

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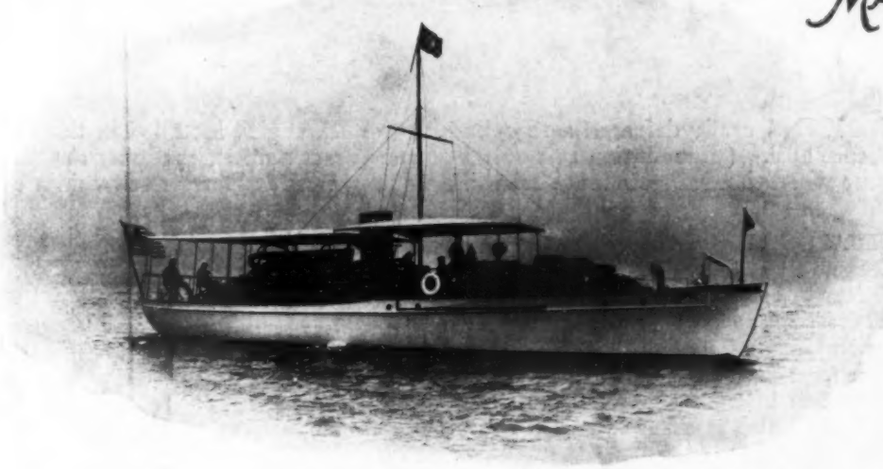

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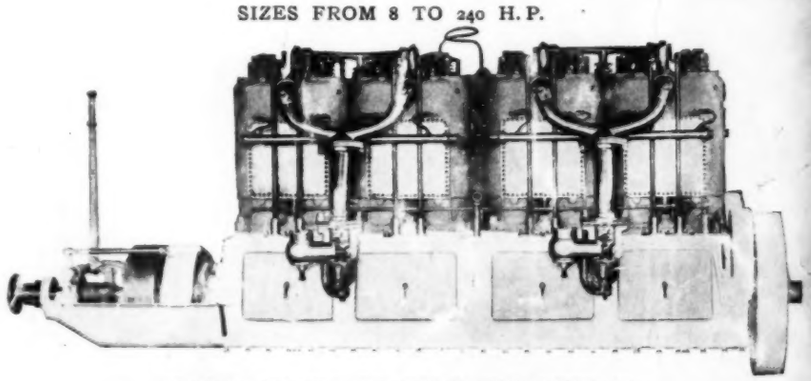

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